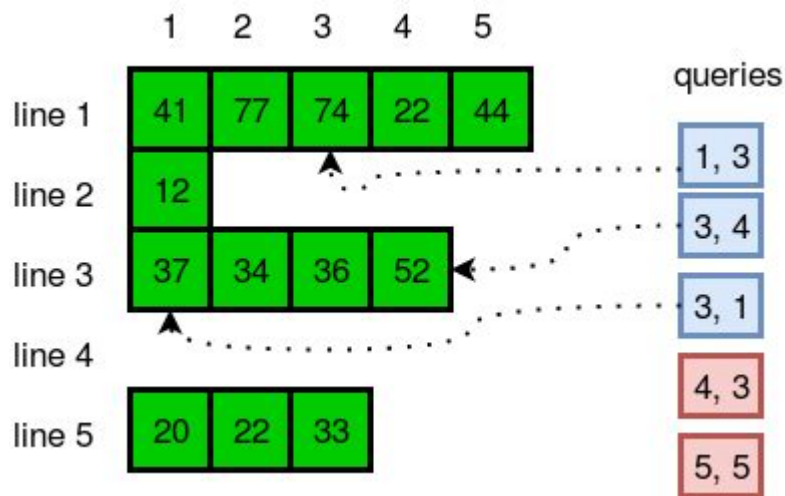


# Good Array Hackerrank Solution



## Good Array HackerRank Solution: A Comprehensive Guide

Are you struggling with the "Good Array" challenge on HackerRank? This comprehensive guide provides not just a solution, but a deep dive into understanding the problem, optimizing your code for efficiency, and mastering the underlying concepts. We'll walk you through various approaches, analyzing their time and space complexity, and ensuring you not only pass the HackerRank tests but also develop a strong foundation in algorithmic problem-solving. Forget frustrating debugging sessions - let's conquer the Good Array together!

### Understanding the Problem: What Makes an Array "Good"?

The HackerRank "Good Array" problem presents a seemingly simple challenge: determine if an array is "good." An array is considered "good" if it satisfies two conditions:

1. No element is zero: The array cannot contain any elements with a value of 0.
2. GCD is greater than 1: The Greatest Common Divisor (GCD) of all elements in the array must be greater than 1.

This seemingly simple problem requires a solid understanding of number theory and efficient algorithm design to achieve optimal performance, especially when dealing with large input arrays.

## Approach 1: Brute-Force with GCD Calculation

A naive approach involves iterating through the array to check for zeros. If no zeros are found, we calculate the GCD of all elements. We can use a recursive or iterative GCD function. While functional, this method suffers from poor time complexity, especially for large arrays.

```
```python
import math

def isGoodArray(arr):
    for num in arr:
        if num == 0:
            return "NO"
    gcd = arr[0]
    for i in range(1, len(arr)):
        gcd = math.gcd(gcd, arr[i])
    if gcd > 1:
        return "YES"
    else:
        return "NO"

# Example Usage
arr = [12, 18, 24]
print(isGoodArray(arr)) # Output: YES
arr = [1, 2, 3]
print(isGoodArray(arr)) # Output: NO
```
```

Time Complexity:  $O(n \log M)$ , where  $n$  is the array length and  $M$  is the maximum element value. The GCD calculation dominates the complexity.  
Space Complexity:  $O(1)$

## Approach 2: Optimized GCD Calculation with Early Exit

We can improve the brute-force approach by adding an early exit. If we encounter a GCD of 1 during the iteration, we can immediately return "NO" without further calculations. This avoids unnecessary computations.

```
```python
import math

def isGoodArrayOptimized(arr):
    for num in arr:
        if num == 0:
```

```

return "NO"
gcd = arr[0]
for i in range(1, len(arr)):
    gcd = math.gcd(gcd, arr[i])
    if gcd == 1:
        return "NO"
    if gcd > 1:
        return "YES"
    else:
        return "NO"
'''

```

Time Complexity:  $O(n \log M)$  in the worst case, but potentially better on average due to early exit.  
 Space Complexity:  $O(1)$

### Approach 3: Leveraging the Euclidean Algorithm for GCD

The Euclidean algorithm provides a highly efficient way to calculate the GCD. Incorporating this into our solution further optimizes performance. The code remains structurally similar to Approach 2, but the GCD calculation is significantly faster.

```

'''python
import math

def isGoodArrayEuclidean(arr):
    for num in arr:
        if num == 0:
            return "NO"
    gcd = arr[0]
    for i in range(1, len(arr)):
        gcd = math.gcd(gcd, arr[i]) # Python's built-in gcd uses Euclidean Algorithm
    if gcd == 1:
        return "NO"
    if gcd > 1:
        return "YES"
    else:
        return "NO"
'''

```

Time Complexity:  $O(n \log M)$ , with a faster GCD calculation than the basic approach.  
 Space Complexity:  $O(1)$

# Choosing the Best Approach

While all three approaches solve the problem, Approach 3, utilizing the Euclidean algorithm, offers the best performance, especially for large input arrays. Python's built-in `math.gcd()` function already employs this optimized algorithm, making it the most efficient and recommended solution.

## Conclusion

Solving the HackerRank "Good Array" problem effectively requires careful consideration of algorithmic efficiency. By understanding the problem constraints and leveraging optimized techniques like the Euclidean algorithm for GCD calculation, we can develop robust and performant solutions. Remember to always analyze your code's time and space complexity to ensure it scales well for various input sizes. Practice with different input arrays to solidify your understanding and improve your problem-solving skills.

## FAQs

1. Can I use a different programming language? Yes, the underlying principles and algorithms remain the same regardless of the programming language. Adapt the code to your preferred language, ensuring you have a function equivalent to Python's `math.gcd()`.
2. What if the array is empty? The code should handle empty arrays gracefully; a simple check at the beginning can prevent errors.
3. How can I further optimize the code? For extremely large datasets, exploring parallel processing techniques for GCD calculation could offer further performance improvements.
4. Are there any other ways to check for a GCD greater than 1 besides the Euclidean algorithm? While less efficient, other methods such as prime factorization could be used, but they generally have higher time complexities.
5. Where can I find more practice problems like this? HackerRank itself offers a wide variety of similar problems categorized by difficulty and topic, providing ample opportunities to hone your skills.

**good array hackerrank solution:** *Data Structures and Algorithm Analysis in Java, Third Edition* Clifford A. Shaffer, 2012-09-06 Comprehensive treatment focuses on creation of efficient data structures and algorithms and selection or design of data structure best suited to specific problems. This edition uses Java as the programming language.

**good array hackerrank solution:** **Cracking the Coding Interview** Gayle Laakmann

McDowell, 2011 Now in the 5th edition, *Cracking the Coding Interview* gives you the interview preparation you need to get the top software developer jobs. This book provides: 150 Programming Interview Questions and Solutions: From binary trees to binary search, this list of 150 questions includes the most common and most useful questions in data structures, algorithms, and knowledge based questions. 5 Algorithm Approaches: Stop being blind-sided by tough algorithm questions, and learn these five approaches to tackle the trickiest problems. Behind the Scenes of the interview processes at Google, Amazon, Microsoft, Facebook, Yahoo, and Apple: Learn what really goes on during your interview day and how decisions get made. Ten Mistakes Candidates Make -- And How to Avoid Them: Don't lose your dream job by making these common mistakes. Learn what many candidates do wrong, and how to avoid these issues. Steps to Prepare for Behavioral and Technical Questions: Stop meandering through an endless set of questions, while missing some of the most important preparation techniques. Follow these steps to more thoroughly prepare in less time.

**good array hackerrank solution: Exercises for Programmers** Brian P. Hogan, 2015-09-04 When you write software, you need to be at the top of your game. Great programmers practice to keep their skills sharp. Get sharp and stay sharp with more than fifty practice exercises rooted in real-world scenarios. If you're a new programmer, these challenges will help you learn what you need to break into the field, and if you're a seasoned pro, you can use these exercises to learn that hot new language for your next gig. One of the best ways to learn a programming language is to use it to solve problems. That's what this book is all about. Instead of questions rooted in theory, this book presents problems you'll encounter in everyday software development. These problems are designed for people learning their first programming language, and they also provide a learning path for experienced developers to learn a new language quickly. Start with simple input and output programs. Do some currency conversion and figure out how many months it takes to pay off a credit card. Calculate blood alcohol content and determine if it's safe to drive. Replace words in files and filter records, and use web services to display the weather, store data, and show how many people are in space right now. At the end you'll tackle a few larger programs that will help you bring everything together. Each problem includes constraints and challenges to push you further, but it's up to you to come up with the solutions. And next year, when you want to learn a new programming language or style of programming (perhaps OOP vs. functional), you can work through this book again, using new approaches to solve familiar problems. What You Need: You need access to a computer, a programming language reference, and the programming language you want to use.

**good array hackerrank solution: A Common-Sense Guide to Data Structures and Algorithms, Second Edition** Jay Wengrow, 2020-08-10 Algorithms and data structures are much more than abstract concepts. Mastering them enables you to write code that runs faster and more efficiently, which is particularly important for today's web and mobile apps. Take a practical approach to data structures and algorithms, with techniques and real-world scenarios that you can use in your daily production code, with examples in JavaScript, Python, and Ruby. This new and revised second edition features new chapters on recursion, dynamic programming, and using Big O in your daily work. Use Big O notation to measure and articulate the efficiency of your code, and modify your algorithm to make it faster. Find out how your choice of arrays, linked lists, and hash tables can dramatically affect the code you write. Use recursion to solve tricky problems and create algorithms that run exponentially faster than the alternatives. Dig into advanced data structures such as binary trees and graphs to help scale specialized applications such as social networks and mapping software. You'll even encounter a single keyword that can give your code a turbo boost. Practice your new skills with exercises in every chapter, along with detailed solutions. Use these techniques today to make your code faster and more scalable.

**good array hackerrank solution: Think Like a Programmer** V. Anton Spraul, 2012-08-12 The real challenge of programming isn't learning a language's syntax—it's learning to creatively solve problems so you can build something great. In this one-of-a-kind text, author V. Anton Spraul breaks down the ways that programmers solve problems and teaches you what other introductory books often ignore: how to Think Like a Programmer. Each chapter tackles a single programming concept,

like classes, pointers, and recursion, and open-ended exercises throughout challenge you to apply your knowledge. You'll also learn how to: -Split problems into discrete components to make them easier to solve -Make the most of code reuse with functions, classes, and libraries -Pick the perfect data structure for a particular job -Master more advanced programming tools like recursion and dynamic memory -Organize your thoughts and develop strategies to tackle particular types of problems Although the book's examples are written in C++, the creative problem-solving concepts they illustrate go beyond any particular language; in fact, they often reach outside the realm of computer science. As the most skillful programmers know, writing great code is a creative art—and the first step in creating your masterpiece is learning to Think Like a Programmer.

**good array hackerrank solution:** Guide to Competitive Programming Antti Laaksonen, 2018-01-02 This invaluable textbook presents a comprehensive introduction to modern competitive programming. The text highlights how competitive programming has proven to be an excellent way to learn algorithms, by encouraging the design of algorithms that actually work, stimulating the improvement of programming and debugging skills, and reinforcing the type of thinking required to solve problems in a competitive setting. The book contains many “folklore” algorithm design tricks that are known by experienced competitive programmers, yet which have previously only been formally discussed in online forums and blog posts. Topics and features: reviews the features of the C++ programming language, and describes how to create efficient algorithms that can quickly process large data sets; discusses sorting algorithms and binary search, and examines a selection of data structures of the C++ standard library; introduces the algorithm design technique of dynamic programming, and investigates elementary graph algorithms; covers such advanced algorithm design topics as bit-parallelism and amortized analysis, and presents a focus on efficiently processing array range queries; surveys specialized algorithms for trees, and discusses the mathematical topics that are relevant in competitive programming; examines advanced graph techniques, geometric algorithms, and string techniques; describes a selection of more advanced topics, including square root algorithms and dynamic programming optimization. This easy-to-follow guide is an ideal reference for all students wishing to learn algorithms, and practice for programming contests. Knowledge of the basics of programming is assumed, but previous background in algorithm design or programming contests is not necessary. Due to the broad range of topics covered at various levels of difficulty, this book is suitable for both beginners and more experienced readers.

**good array hackerrank solution:** Scala for the Impatient Cay S. Horstmann, 2012-03-08 Scala is a modern programming language for the Java Virtual Machine (JVM) that combines the best features of object-oriented and functional programming languages. Using Scala, you can write programs more concisely than in Java, as well as leverage the full power of concurrency. Since Scala runs on the JVM, it can access any Java library and is interoperable with Java frameworks. Scala for the Impatient concisely shows developers what Scala can do and how to do it. In this book, Cay Horstmann, the principal author of the international best-selling Core Java™, offers a rapid, code-based introduction that's completely practical. Horstmann introduces Scala concepts and techniques in “blog-sized” chunks that you can quickly master and apply. Hands-on activities guide you through well-defined stages of competency, from basic to expert. Coverage includes Getting started quickly with Scala's interpreter, syntax, tools, and unique idioms Mastering core language features: functions, arrays, maps, tuples, packages, imports, exception handling, and more Becoming familiar with object-oriented programming in Scala: classes, inheritance, and traits Using Scala for real-world programming tasks: working with files, regular expressions, and XML Working with higher-order functions and the powerful Scala collections library Leveraging Scala's powerful pattern matching and case classes Creating concurrent programs with Scala actors Implementing domain-specific languages Understanding the Scala type system Applying advanced “power tools” such as annotations, implicits, and delimited continuations Scala is rapidly reaching a tipping point that will reshape the experience of programming. This book will help object-oriented programmers build on their existing skills, allowing them to immediately construct useful applications as they

gradually master advanced programming techniques.

**good array hackerrank solution: *Algorithms, Part II*** Robert Sedgewick, Kevin Wayne, 2014-02-01 This book is Part II of the fourth edition of Robert Sedgewick and Kevin Wayne's *Algorithms*, the leading textbook on algorithms today, widely used in colleges and universities worldwide. Part II contains Chapters 4 through 6 of the book. The fourth edition of *Algorithms* surveys the most important computer algorithms currently in use and provides a full treatment of data structures and algorithms for sorting, searching, graph processing, and string processing -- including fifty algorithms every programmer should know. In this edition, new Java implementations are written in an accessible modular programming style, where all of the code is exposed to the reader and ready to use. The algorithms in this book represent a body of knowledge developed over the last 50 years that has become indispensable, not just for professional programmers and computer science students but for any student with interests in science, mathematics, and engineering, not to mention students who use computation in the liberal arts. The companion web site, [algs4.cs.princeton.edu](http://algs4.cs.princeton.edu) contains An online synopsis Full Java implementations Test data Exercises and answers Dynamic visualizations Lecture slides Programming assignments with checklists Links to related material The MOOC related to this book is accessible via the Online Course link at [algs4.cs.princeton.edu](http://algs4.cs.princeton.edu). The course offers more than 100 video lecture segments that are integrated with the text, extensive online assessments, and the large-scale discussion forums that have proven so valuable. Offered each fall and spring, this course regularly attracts tens of thousands of registrants. Robert Sedgewick and Kevin Wayne are developing a modern approach to disseminating knowledge that fully embraces technology, enabling people all around the world to discover new ways of learning and teaching. By integrating their textbook, online content, and MOOC, all at the state of the art, they have built a unique resource that greatly expands the breadth and depth of the educational experience.

**good array hackerrank solution: *Algorithms*** Robert Sedgewick, Kevin Wayne, 2014-02-01 This book is Part I of the fourth edition of Robert Sedgewick and Kevin Wayne's *Algorithms*, the leading textbook on algorithms today, widely used in colleges and universities worldwide. Part I contains Chapters 1 through 3 of the book. The fourth edition of *Algorithms* surveys the most important computer algorithms currently in use and provides a full treatment of data structures and algorithms for sorting, searching, graph processing, and string processing -- including fifty algorithms every programmer should know. In this edition, new Java implementations are written in an accessible modular programming style, where all of the code is exposed to the reader and ready to use. The algorithms in this book represent a body of knowledge developed over the last 50 years that has become indispensable, not just for professional programmers and computer science students but for any student with interests in science, mathematics, and engineering, not to mention students who use computation in the liberal arts. The companion web site, [algs4.cs.princeton.edu](http://algs4.cs.princeton.edu) contains An online synopsis Full Java implementations Test data Exercises and answers Dynamic visualizations Lecture slides Programming assignments with checklists Links to related material The MOOC related to this book is accessible via the Online Course link at [algs4.cs.princeton.edu](http://algs4.cs.princeton.edu). The course offers more than 100 video lecture segments that are integrated with the text, extensive online assessments, and the large-scale discussion forums that have proven so valuable. Offered each fall and spring, this course regularly attracts tens of thousands of registrants. Robert Sedgewick and Kevin Wayne are developing a modern approach to disseminating knowledge that fully embraces technology, enabling people all around the world to discover new ways of learning and teaching. By integrating their textbook, online content, and MOOC, all at the state of the art, they have built a unique resource that greatly expands the breadth and depth of the educational experience.

**good array hackerrank solution: *JavaScript for Kids*** Nick Morgan, 2014-12-14 JavaScript is the programming language of the Internet, the secret sauce that makes the Web awesome, your favorite sites interactive, and online games fun! *JavaScript for Kids* is a lighthearted introduction that teaches programming essentials through patient, step-by-step examples paired with funny

illustrations. You'll begin with the basics, like working with strings, arrays, and loops, and then move on to more advanced topics, like building interactivity with jQuery and drawing graphics with Canvas. Along the way, you'll write games such as Find the Buried Treasure, Hangman, and Snake. You'll also learn how to: -Create functions to organize and reuse your code -Write and modify HTML to create dynamic web pages -Use the DOM and jQuery to make your web pages react to user input -Use the Canvas element to draw and animate graphics -Program real user-controlled games with collision detection and score keeping With visual examples like bouncing balls, animated bees, and racing cars, you can really see what you're programming. Each chapter builds on the last, and programming challenges at the end of each chapter will stretch your brain and inspire your own amazing programs. Make something cool with JavaScript today! Ages 10+ (and their parents!)

**good array hackerrank solution: Flask Web Development** Miguel Grinberg, 2018-03-05 Take full creative control of your web applications with Flask, the Python-based microframework. With the second edition of this hands-on book, you'll learn Flask from the ground up by developing a complete, real-world application created by author Miguel Grinberg. This refreshed edition accounts for important technology changes that have occurred in the past three years. Explore the framework's core functionality, and learn how to extend applications with advanced web techniques such as database migrations and an application programming interface. The first part of each chapter provides you with reference and background for the topic in question, while the second part guides you through a hands-on implementation. If you have Python experience, you're ready to take advantage of the creative freedom Flask provides. Three sections include: A thorough introduction to Flask: explore web application development basics with Flask and an application structure appropriate for medium and large applications Building Flasky: learn how to build an open source blogging application step-by-step by reusing templates, paginating item lists, and working with rich text Going the last mile: dive into unit testing strategies, performance analysis techniques, and deployment options for your Flask application

**good array hackerrank solution: Java Cookbook** Ian F. Darwin, 2014-06-25 From lambda expressions and JavaFX 8 to new support for network programming and mobile development, Java 8 brings a wealth of changes. This cookbook helps you get up to speed right away with hundreds of hands-on recipes across a broad range of Java topics. You'll learn useful techniques for everything from debugging and data structures to GUI development and functional programming. Each recipe includes self-contained code solutions that you can freely use, along with a discussion of how and why they work. If you are familiar with Java basics, this cookbook will bolster your knowledge of the language in general and Java 8's main APIs in particular. Recipes include: Methods for compiling, running, and debugging Manipulating, comparing, and rearranging text Regular expressions for string- and pattern-matching Handling numbers, dates, and times Structuring data with collections, arrays, and other types Object-oriented and functional programming techniques Directory and filesystem operations Working with graphics, audio, and video GUI development, including JavaFX and handlers Network programming on both client and server Database access, using JPA, Hibernate, and JDBC Processing JSON and XML for data storage Multithreading and concurrency

**good array hackerrank solution: Introduction To Algorithms** Thomas H Cormen, Charles E Leiserson, Ronald L Rivest, Clifford Stein, 2001 An extensively revised edition of a mathematically rigorous yet accessible introduction to algorithms.

**good array hackerrank solution: Learning Python** Mark Lutz, 2007-10-22 Portable, powerful, and a breeze to use, Python is ideal for both standalone programs and scripting applications. With this hands-on book, you can master the fundamentals of the core Python language quickly and efficiently, whether you're new to programming or just new to Python. Once you finish, you will know enough about the language to use it in any application domain you choose. Learning Python is based on material from author Mark Lutz's popular training courses, which he's taught over the past decade. Each chapter is a self-contained lesson that helps you thoroughly understand a key component of Python before you continue. Along with plenty of annotated examples, illustrations, and chapter summaries, every chapter also contains Brain Builder, a unique section with practical

exercises and review quizzes that let you practice new skills and test your understanding as you go. This book covers: Types and Operations -- Python's major built-in object types in depth: numbers, lists, dictionaries, and more Statements and Syntax -- the code you type to create and process objects in Python, along with Python's general syntax model Functions -- Python's basic procedural tool for structuring and reusing code Modules -- packages of statements, functions, and other tools organized into larger components Classes and OOP -- Python's optional object-oriented programming tool for structuring code for customization and reuse Exceptions and Tools -- exception handling model and statements, plus a look at development tools for writing larger programs Learning Python gives you a deep and complete understanding of the language that will help you comprehend any application-level examples of Python that you later encounter. If you're ready to discover what Google and YouTube see in Python, this book is the best way to get started.

**good array hackerrank solution: *Python 101*** Michael Driscoll, 2014-06-03 Learn how to program with Python from beginning to end. This book is for beginners who want to get up to speed quickly and become intermediate programmers fast!

**good array hackerrank solution: *The Algorithm Design Manual*** Steven S Skiena, 2009-04-05 This newly expanded and updated second edition of the best-selling classic continues to take the mystery out of designing algorithms, and analyzing their efficacy and efficiency. Expanding on the first edition, the book now serves as the primary textbook of choice for algorithm design courses while maintaining its status as the premier practical reference guide to algorithms for programmers, researchers, and students. The reader-friendly Algorithm Design Manual provides straightforward access to combinatorial algorithms technology, stressing design over analysis. The first part, Techniques, provides accessible instruction on methods for designing and analyzing computer algorithms. The second part, Resources, is intended for browsing and reference, and comprises the catalog of algorithmic resources, implementations and an extensive bibliography. NEW to the second edition: • Doubles the tutorial material and exercises over the first edition • Provides full online support for lecturers, and a completely updated and improved website component with lecture slides, audio and video • Contains a unique catalog identifying the 75 algorithmic problems that arise most often in practice, leading the reader down the right path to solve them • Includes several NEW war stories relating experiences from real-world applications • Provides up-to-date links leading to the very best algorithm implementations available in C, C++, and Java

**good array hackerrank solution: *Algorithms*** Robert Sedgewick, 1988 Software -- Programming Techniques.

**good array hackerrank solution: *Grokking the System Design Interview*** Design Gurus, 2021-12-18 This book (also available online at [www.designgurus.org](http://www.designgurus.org)) by Design Gurus has helped 60k+ readers to crack their system design interview (SDI). System design questions have become a standard part of the software engineering interview process. These interviews determine your ability to work with complex systems and the position and salary you will be offered by the interviewing company. Unfortunately, SDI is difficult for most engineers, partly because they lack experience developing large-scale systems and partly because SDIs are unstructured in nature. Even engineers who've some experience building such systems aren't comfortable with these interviews, mainly due to the open-ended nature of design problems that don't have a standard answer. This book is a comprehensive guide to master SDIs. It was created by hiring managers who have worked for Google, Facebook, Microsoft, and Amazon. The book contains a carefully chosen set of questions that have been repeatedly asked at top companies. What's inside? This book is divided into two parts. The first part includes a step-by-step guide on how to answer a system design question in an interview, followed by famous system design case studies. The second part of the book includes a glossary of system design concepts. Table of Contents First Part: System Design Interviews: A step-by-step guide. Designing a URL Shortening service like TinyURL. Designing Pastebin. Designing Instagram. Designing Dropbox. Designing Facebook Messenger. Designing Twitter. Designing YouTube or Netflix. Designing Typeahead Suggestion. Designing an API Rate Limiter.

Designing Twitter Search. Designing a Web Crawler. Designing Facebook's Newsfeed. Designing Yelp or Nearby Friends. Designing Uber backend. Designing Ticketmaster. Second Part: Key Characteristics of Distributed Systems. Load Balancing. Caching. Data Partitioning. Indexes. Proxies. Redundancy and Replication. SQL vs. NoSQL. CAP Theorem. PACELC Theorem. Consistent Hashing. Long-Polling vs. WebSockets vs. Server-Sent Events. Bloom Filters. Quorum. Leader and Follower. Heartbeat. Checksum. About the Authors Designed Gurus is a platform that offers online courses to help software engineers prepare for coding and system design interviews. Learn more about our courses at [www.designgurus.org](http://www.designgurus.org).

**good array hackerrank solution: Coding Interview Questions** Narasimha Karumanchi, 2012-05 Coding Interview Questions is a book that presents interview questions in simple and straightforward manner with a clear-cut explanation. This book will provide an introduction to the basics. It comes handy as an interview and exam guide for computer scientists. Programming puzzles for interviews Campus Preparation Degree/Masters Course Preparation Big job hunters: Apple, Microsoft, Google, Amazon, Yahoo, Flip Kart, Adobe, IBM Labs, Citrix, Mentor Graphics, NetApp, Oracle, Webaroo, De-Shaw, Success Factors, Face book, McAfee and many more Reference Manual for working people Topics Covered: Programming Basics Introduction Recursion and Backtracking Linked Lists Stacks Queues Trees Priority Queue and Heaps Graph Algorithms Sorting Searching Selection Algorithms [Medians] Symbol Tables Hashing String Algorithms Algorithms Design Techniques Greedy Algorithms Divide and Conquer Algorithms Dynamic Programming Complexity Classes Design Interview Questions Operating System Concepts Computer Networking Basics Database Concepts Brain Teasers NonTechnical Help Miscellaneous Concepts Note: If you already have Data Structures and Algorithms Made Easy no need to buy this.

**good array hackerrank solution: Advances in Decision Sciences, Image Processing, Security and Computer Vision** Suresh Chandra Satapathy, K. Srujan Raju, K. Shyamala, D. Rama Krishna, Margarita N. Favorskaya, 2019-07-12 This book constitutes the proceedings of the First International Conference on Emerging Trends in Engineering (ICETE), held at University College of Engineering and organised by the Alumni Association, University College of Engineering, Osmania University, in Hyderabad, India on 22-23 March 2019. The proceedings of the ICETE are published in three volumes, covering seven areas: Biomedical, Civil, Computer Science, Electrical & Electronics, Electronics & Communication, Mechanical, and Mining Engineering. The 215 peer-reviewed papers from around the globe present the latest state-of-the-art research, and are useful to postgraduate students, researchers, academics and industry engineers working in the respective fields. Volume 1 presents papers on the theme "Advances in Decision Sciences, Image Processing, Security and Computer Vision - International Conference on Emerging Trends in Engineering (ICETE)". It includes state-of-the-art technical contributions in the area of biomedical and computer science engineering, discussing sustainable developments in the field, such as instrumentation and innovation, signal and image processing, Internet of Things, cryptography and network security, data mining and machine learning.

**good array hackerrank solution: Python Crash Course** Eric Matthes, 2015-11-01 Python Crash Course is a fast-paced, thorough introduction to Python that will have you writing programs, solving problems, and making things that work in no time. In the first half of the book, you'll learn about basic programming concepts, such as lists, dictionaries, classes, and loops, and practice writing clean and readable code with exercises for each topic. You'll also learn how to make your programs interactive and how to test your code safely before adding it to a project. In the second half of the book, you'll put your new knowledge into practice with three substantial projects: a Space Invaders-inspired arcade game, data visualizations with Python's super-handly libraries, and a simple web app you can deploy online. As you work through Python Crash Course you'll learn how to: -Use powerful Python libraries and tools, including matplotlib, NumPy, and Pygal -Make 2D games that respond to keypresses and mouse clicks, and that grow more difficult as the game progresses -Work with data to generate interactive visualizations -Create and customize Web apps and deploy them safely online -Deal with mistakes and errors so you can solve your own programming problems If

you've been thinking seriously about digging into programming, Python Crash Course will get you up to speed and have you writing real programs fast. Why wait any longer? Start your engines and code! Uses Python 2 and 3

**good array hackerrank solution:** *Data Structures and Algorithms in Java* Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, 2014-01-28 The design and analysis of efficient data structures has long been recognized as a key component of the Computer Science curriculum. Goodrich, Tomassia and Goldwasser's approach to this classic topic is based on the object-oriented paradigm as the framework of choice for the design of data structures. For each ADT presented in the text, the authors provide an associated Java interface. Concrete data structures realizing the ADTs are provided as Java classes implementing the interfaces. The Java code implementing fundamental data structures in this book is organized in a single Java package, `net.datastructures`. This package forms a coherent library of data structures and algorithms in Java specifically designed for educational purposes in a way that is complimentary with the Java Collections Framework.

**good array hackerrank solution:** *Optimized C++* Kurt Guntheroth, 2016-04-27 In today's fast and competitive world, a program's performance is just as important to customers as the features it provides. This practical guide teaches developers performance-tuning principles that enable optimization in C++. You'll learn how to make code that already embodies best practices of C++ design run faster and consume fewer resources on any computer—whether it's a watch, phone, workstation, supercomputer, or globe-spanning network of servers. Author Kurt Guntheroth provides several running examples that demonstrate how to apply these principles incrementally to improve existing code so it meets customer requirements for responsiveness and throughput. The advice in this book will prove itself the first time you hear a colleague exclaim, "Wow, that was fast. Who fixed something?" Locate performance hot spots using the profiler and software timers Learn to perform repeatable experiments to measure performance of code changes Optimize use of dynamically allocated variables Improve performance of hot loops and functions Speed up string handling functions Recognize efficient algorithms and optimization patterns Learn the strengths—and weaknesses—of C++ container classes View searching and sorting through an optimizer's eye Make efficient use of C++ streaming I/O functions Use C++ thread-based concurrency features effectively

**good array hackerrank solution:** *Pointers in C* Hrishikesh Dewan, Naveen Toppo, 2014-01-21 Pointers in C provides a resource for professionals and advanced students needing in-depth but hands-on coverage of pointer basics and advanced features. The goal is to help programmers in wielding the full potential of pointers. In spite of its vast usage, understanding and proper usage of pointers remains a significant problem. This book's aim is to first introduce the basic building blocks such as elaborate details about memory, the compilation process (parsing/preprocessing/assembler/object code generation), the runtime memory organization of an executable and virtual memory. These basic building blocks will help both beginners and advanced readers to grasp the notion of pointers very easily and clearly. The book is enriched with several illustrations, pictorial examples, and code from different contexts (Device driver code snippets, algorithm, and data structures code where pointers are used). Pointers in C contains several quick tips which will be useful for programmers for not just learning the pointer concept but also while using other features of the C language. Chapters in the book are intuitive, and there is a strict logical flow among them and each chapter forms a basis for the next chapter. This book contains every small aspect of pointer features in the C language in their entirety.

**good array hackerrank solution:** *Open Data Structures* Pat Morin, 2013 Introduction -- Array-based lists -- Linked lists -- Skiplists -- Hash tables -- Binary trees -- Random binary search trees -- Scapegoat trees -- Red-black trees -- Heaps -- Sorting algorithms -- Graphs -- Data structures for integers -- External memory searching.

**good array hackerrank solution:** *Mastering Oracle PL/SQL* Christopher Beck, Joel Kallman, Chaim Katz, David C. Knox, Connor McDonald, 2008-01-01 If you have mastered the fundamentals of the PL/SQL language and are now looking for an in-depth, practical guide to solving real problems

with PL/SQL stored procedures, then this is the book for you.

**good array hackerrank solution: Scala Cookbook** Alvin Alexander, 2021-08-10 Save time and trouble building object-oriented, functional, and concurrent applications with Scala 3. The latest edition of this comprehensive cookbook is packed with more than 250 ready-to-use recipes and 700 code examples to help you solve the most common problems when working with Scala and its popular libraries. Whether you're working on web, big data, or distributed applications, this cookbook provides recipes based on real-world scenarios for experienced Scala developers and for programmers just learning to use this JVM language. Author Alvin Alexander includes practical solutions from his experience using Scala for highly scalable applications that support concurrency and distribution. Recipes cover: Strings, numbers, and control structures Classes, methods, objects, traits, packaging, and imports Functional programming in a variety of situations Building Scala applications with sbt Collections covering Scala's wealth of classes and methods Actors and concurrency List, array, map, set, and more Files, processes, and command-line tasks Web services and interacting with Java Databases and persistence, data types and idioms.

**good array hackerrank solution: Programming Challenges** Steven S Skiena, Miguel A. Revilla, 2006-04-18 There are many distinct pleasures associated with computer programming. Craftsmanship has its quiet rewards, the satisfaction that comes from building a useful object and making it work. Excitement arrives with the flash of insight that cracks a previously intractable problem. The spiritual quest for elegance can turn the hacker into an artist. There are pleasures in parsimony, in squeezing the last drop of performance out of clever algorithms and tight coding. The games, puzzles, and challenges of problems from international programming competitions are a great way to experience these pleasures while improving your algorithmic and coding skills. This book contains over 100 problems that have appeared in previous programming contests, along with discussions of the theory and ideas necessary to attack them. Instant online grading for all of these problems is available from two WWW robot judging sites. Combining this book with a judge gives an exciting new way to challenge and improve your programming skills. This book can be used for self-study, for teaching innovative courses in algorithms and programming, and in training for international competition. The problems in this book have been selected from over 1,000 programming problems at the Universidad de Valladolid online judge. The judge has ruled on well over one million submissions from 27,000 registered users around the world to date. We have taken only the best of the best, the most fun, exciting, and interesting problems available.

**good array hackerrank solution: An Introduction to Analysis** Robert C. Gunning, 2018-03-20 An essential undergraduate textbook on algebra, topology, and calculus An Introduction to Analysis is an essential primer on basic results in algebra, topology, and calculus for undergraduate students considering advanced degrees in mathematics. Ideal for use in a one-year course, this unique textbook also introduces students to rigorous proofs and formal mathematical writing--skills they need to excel. With a range of problems throughout, An Introduction to Analysis treats n-dimensional calculus from the beginning--differentiation, the Riemann integral, series, and differential forms and Stokes's theorem--enabling students who are serious about mathematics to progress quickly to more challenging topics. The book discusses basic material on point set topology, such as normed and metric spaces, topological spaces, compact sets, and the Baire category theorem. It covers linear algebra as well, including vector spaces, linear mappings, Jordan normal form, bilinear mappings, and normal mappings. Proven in the classroom, An Introduction to Analysis is the first textbook to bring these topics together in one easy-to-use and comprehensive volume. Provides a rigorous introduction to calculus in one and several variables Introduces students to basic topology Covers topics in linear algebra, including matrices, determinants, Jordan normal form, and bilinear and normal mappings Discusses differential forms and Stokes's theorem in n dimensions Also covers the Riemann integral, integrability, improper integrals, and series expansions

**good array hackerrank solution: How to Solve it** George Pólya, 2014 Polya reveals how the mathematical method of demonstrating a proof or finding an unknown can be of help in attacking any problem that can be reasoned out--from building a bridge to winning a game of anagrams.--Back

cover.

**good array hackerrank solution: High Performance Web Sites** Steve Souders, 2007-09-11  
Want your web site to display more quickly? This book presents 14 specific rules that will cut 25% to 50% off response time when users request a page. Author Steve Souders, in his job as Chief Performance Yahoo!, collected these best practices while optimizing some of the most-visited pages on the Web. Even sites that had already been highly optimized, such as Yahoo! Search and the Yahoo! Front Page, were able to benefit from these surprisingly simple performance guidelines. The rules in High Performance Web Sites explain how you can optimize the performance of the Ajax, CSS, JavaScript, Flash, and images that you've already built into your site -- adjustments that are critical for any rich web application. Other sources of information pay a lot of attention to tuning web servers, databases, and hardware, but the bulk of display time is taken up on the browser side and by the communication between server and browser. High Performance Web Sites covers every aspect of that process. Each performance rule is supported by specific examples, and code snippets are available on the book's companion web site. The rules include how to: Make Fewer HTTP Requests Use a Content Delivery Network Add an Expires Header Gzip Components Put Stylesheets at the Top Put Scripts at the Bottom Avoid CSS Expressions Make JavaScript and CSS External Reduce DNS Lookups Minify JavaScript Avoid Redirects Remove Duplicates Scripts Configure ETags Make Ajax Cacheable If you're building pages for high traffic destinations and want to optimize the experience of users visiting your site, this book is indispensable. If everyone would implement just 20% of Steve's guidelines, the Web would be a dramatically better place. Between this book and Steve's YSlow extension, there's really no excuse for having a sluggish web site anymore. -Joe Hewitt, Developer of Firebug debugger and Mozilla's DOM Inspector Steve Souders has done a fantastic job of distilling a massive, semi-arcane art down to a set of concise, actionable, pragmatic engineering steps that will change the world of web performance. -Eric Lawrence, Developer of the Fiddler Web Debugger, Microsoft Corporation

**good array hackerrank solution: How to Design Programs, second edition** Matthias Felleisen, Robert Bruce Findler, Matthew Flatt, Shriram Krishnamurthi, 2018-05-25 A completely revised edition, offering new design recipes for interactive programs and support for images as plain values, testing, event-driven programming, and even distributed programming. This introduction to programming places computer science at the core of a liberal arts education. Unlike other introductory books, it focuses on the program design process, presenting program design guidelines that show the reader how to analyze a problem statement, how to formulate concise goals, how to make up examples, how to develop an outline of the solution, how to finish the program, and how to test it. Because learning to design programs is about the study of principles and the acquisition of transferable skills, the text does not use an off-the-shelf industrial language but presents a tailor-made teaching language. For the same reason, it offers DrRacket, a programming environment for novices that supports playful, feedback-oriented learning. The environment grows with readers as they master the material in the book until it supports a full-fledged language for the whole spectrum of programming tasks. This second edition has been completely revised. While the book continues to teach a systematic approach to program design, the second edition introduces different design recipes for interactive programs with graphical interfaces and batch programs. It also enriches its design recipes for functions with numerous new hints. Finally, the teaching languages and their IDE now come with support for images as plain values, testing, event-driven programming, and even distributed programming.

**good array hackerrank solution: Dynamic Programming for Coding Interviews** Meenakshi, Kamal Rawat, 2017-01-18 I wanted to compute 80th term of the Fibonacci series. I wrote the rampant recursive function, `int fib(int n){ return (1==n || 2==n) ? 1 : fib(n-1) + fib(n-2); }` and waited for the result. I wait... and wait... and wait... With an 8GB RAM and an Intel i5 CPU, why is it taking so long? I terminated the process and tried computing the 40th term. It took about a second. I put a check and was shocked to find that the above recursive function was called 204,668,309 times while computing the 40th term. More than 200 million times? Is it reporting function calls or scam of

some government? The Dynamic Programming solution computes 100th Fibonacci term in less than fraction of a second, with a single function call, taking linear time and constant extra memory. A recursive solution, usually, neither pass all test cases in a coding competition, nor does it impress the interviewer in an interview of company like Google, Microsoft, etc. The most difficult questions asked in competitions and interviews, are from dynamic programming. This book takes Dynamic Programming head-on. It first explain the concepts with simple examples and then deep dives into complex DP problems.

**good array hackerrank solution: Competitive Programming 2** Steven Halim, Felix Halim, 2011

**good array hackerrank solution: Hands-on Scala Programming: Learn Scala in a Practical, Project-Based Way** Haoyi Li, 2020-07-11 Hands-on Scala teaches you how to use the Scala programming language in a practical, project-based fashion. This book is designed to quickly teach an existing programmer everything needed to go from hello world to building production applications like interactive websites, parallel web crawlers, and distributed systems in Scala. In the process you will learn how to use the Scala language to solve challenging problems in an elegant and intuitive manner.

**good array hackerrank solution: C++ Primer Plus** Stephen Prata, 2004-11-15 If you are new to C++ programming, C++ Primer Plus, Fifth Edition is a friendly and easy-to-use self-study guide. You will cover the latest and most useful language enhancements, the Standard Template Library and ways to streamline object-oriented programming with C++. This guide also illustrates how to handle input and output, make programs perform repetitive tasks, manipulate data, hide information, use functions and build flexible, easily modifiable programs. With the help of this book, you will: Learn C++ programming from the ground up. Learn through real-world, hands-on examples. Experiment with concepts, including classes, inheritance, templates and exceptions. Reinforce knowledge gained through end-of-chapter review questions and practice programming exercises. C++ Primer Plus, Fifth Edition makes learning and using important object-oriented programming concepts understandable. Choose this classic to learn the fundamentals and more of C++ programming.

**good array hackerrank solution: Constraint Processing** Rina Dechter, 2003-05-05 Constraint reasoning has matured over the last three decades with contributions from a diverse community of researchers in artificial intelligence, databases and programming languages, operations research, management science, and applied mathematics. In Constraint Processing, Rina Dechter synthesizes these contributions, as well as her own significant work, to provide the first comprehensive examination of the theory that underlies constraint processing algorithms.

**good array hackerrank solution: Programming Interviews Exposed** John Mongan, Noah Suojanen Kindler, Eric Giguère, 2011-08-10 The pressure is on during the interview process but with the right preparation, you can walk away with your dream job. This classic book uncovers what interviews are really like at America's top software and computer companies and provides you with the tools to succeed in any situation. The authors take you step-by-step through new problems and complex brainteasers they were asked during recent technical interviews. 50 interview scenarios are presented along with in-depth analysis of the possible solutions. The problem-solving process is clearly illustrated so you'll be able to easily apply what you've learned during crunch time. You'll also find expert tips on what questions to ask, how to approach a problem, and how to recover if you become stuck. All of this will help you ace the interview and get the job you want. What you will learn from this book  
Tips for effectively completing the job application  
Ways to prepare for the entire programming interview process  
How to find the kind of programming job that fits you best  
Strategies for choosing a solution and what your approach says about you  
How to improve your interviewing skills so that you can respond to any question or situation  
Techniques for solving knowledge-based problems, logic puzzles, and programming problems  
Who this book is for  
This book is for programmers and developers applying for jobs in the software industry or in IT departments of major corporations. Wrox Beginning guides are crafted to make learning programming languages

and technologies easier than you think, providing a structured, tutorial format that will guide you through all the techniques involved.

**good array hackerrank solution: The Java Virtual Machine Specification, Java SE 7 Edition** Tim Lindholm, Frank Yellin, Gilad Bracha, Alex Buckley, 2013-02-15 Written by the inventors of the technology, The Java® Virtual Machine Specification, Java SE 7 Edition, is the definitive technical reference for the Java Virtual Machine. The book provides complete, accurate, and detailed coverage of the Java Virtual Machine. It fully describes the invokedynamic instruction and method handle mechanism added in Java SE 7, and gives the formal Prolog specification of the type-checking verifier introduced in Java SE 6. The book also includes the class file extensions for generics and annotations defined in Java SE 5.0, and aligns the instruction set and initialization rules with the Java Memory Model.

**good array hackerrank solution: C# 3.0 Design Patterns** Judith Bishop, 2007-12-10 If you want to speed up the development of your .NET applications, you're ready for C# design patterns -- elegant, accepted and proven ways to tackle common programming problems. This practical guide offers you a clear introduction to the classic object-oriented design patterns, and explains how to use the latest features of C# 3.0 to code them. C# Design Patterns draws on new C# 3.0 language and .NET 3.5 framework features to implement the 23 foundational patterns known to working developers. You get plenty of case studies that reveal how each pattern is used in practice, and an insightful comparison of patterns and where they would be best used or combined. This well-organized and illustrated book includes: An explanation of design patterns and why they're used, with tables and guidelines to help you choose one pattern over another Illustrated coverage of each classic Creational, Structural, and Behavioral design pattern, including its representation in UML and the roles of its various players C# 3.0 features introduced by example and summarized in sidebars for easy reference Examples of each pattern at work in a real .NET 3.5 program available for download from O'Reilly and the author's companion web site Quizzes and exercises to test your understanding of the material. With C# 3.0 Design Patterns, you learn to make code correct, extensible and efficient to save time up front and eliminate problems later. If your business relies on efficient application development and quality code, you need C# Design Patterns.

### **Recommendations for free online movie sites? : r/Piracy - Reddit**

Hiya folks! So, I'm planning on hosting some movie nights with my online friends, but the site i usually use was taken down due to copyright : ( do you have any recommendations for some ...

### **Are there any good free vpns? : r/software - Reddit**

Dec 4, 2021 · 17 votes, 28 comments. I am looking to install and use a vpn for free (not pirated) for my own use. Are there any genuine good vpns?

### **Browser Recommendation Megathread - April 2024 : r/browsers**

Is Mercury a good alternative compared to normal Firefox? With this manifest thing I want to move out from Chromium browsers. I really like how Chrome and Thorium works but man, surfing ...

### ***Any good and safe Youtube To MP3 apps/websites? - Reddit***

I'd like to download some music from YT but I don't really trust any sites i've found, i'd rather use websites than to have to download some app but if anyone can suggest something that won't ...

### ***Compiled List of Monitor Recommendations from r/monitors and ...***

What about the people like me who are looking for a monitor with a better display quality with good color reproduction and more inclined towards the features like higher Bit depth and ...

### **List of Safe Rom Sites (Please Stop Asking) : r/Roms - Reddit**

I could do a list myself, but it would be redundant due to the existence of the megathread, it would

be easier to say, "want to check good places for ROMs? Go to the freaking megathread" xD

*What are ideal & dangerous temps for you CPU and GPU?*

Anything under 80C is ideal/good. 80-90C is okay. And 90+, you need to check case/fan set up. New GPUs are rated to reach high temperatures now and even if it gets that high it'll throttle to ...

*Wallpaper (Computer Desktops/Backgrounds) - Reddit*

Welcome to Wallpaper! An excellent place to find every type of wallpaper possible. This collaboration of over 1,750,000 users contributing their unique finds makes /r/wallpaper one of ...

*Let's create a list of actually good current Roblox games - Reddit*

But, there are still some good games to be found. So, here is a list of the ones I enjoy and encourage people to play. Let me know if you have any additions: Phantom Forces: Probably ...

*Good free video editor apps/sites (Windows - NO WATERMARK)*

Nov 20, 2021 · Hello everyone, I'm a student and if it isn't obvious from the fact that I'm a student, I'm broke. I don't have any money to purchase any cool editing softwares like filmora. I just ...

**Recommendations for free online movie sites? : r/Piracy - Reddit**

Hiya folks! So, I'm planning on hosting some movie nights with my online friends, but the site i usually use was taken down due to copyright : ( do you have any recommendations for some ...

Are there any good free vpns? : r/software - Reddit

Dec 4, 2021 · 17 votes, 28 comments. I am looking to install and use a vpn for free (not pirated) for my own use. Are there any genuine good vpns?

*Browser Recommendation Megathread - April 2024 : r/browsers*

Is Mercury a good alternative compared to normal Firefox? With this manifest thing I want to move out from Chromium browsers. I really like how Chrome and Thorium works but man, surfing the ...

**Any good and safe Youtube To MP3 apps/websites? - Reddit**

I'd like to download some music from YT but I don't really trust any sites i've found, i'd rather use websites than to have to download some app but if anyone can suggest something that won't ...

**Compiled List of Monitor Recommendations from r/monitors and ...**

What about the people like me who are looking for a monitor with a better display quality with good color reproduction and more inclined towards the features like higher Bit depth and higher Color ...

**List of Safe Rom Sites (Please Stop Asking) : r/Roms - Reddit**

I could do a list myself, but it would be redundant due to the existence of the megathread, it would be easier to say, "want to check good places for ROMs? Go to the freaking megathread" xD

*What are ideal & dangerous temps for you CPU and GPU?*

Anything under 80C is ideal/good. 80-90C is okay. And 90+, you need to check case/fan set up. New GPUs are rated to reach high temperatures now and even if it gets that high it'll throttle to ...

**Wallpaper (Computer Desktops/Backgrounds) - Reddit**

Welcome to Wallpaper! An excellent place to find every type of wallpaper possible. This collaboration of over 1,750,000 users contributing their unique finds makes /r/wallpaper one of ...

**Let's create a list of actually good current Roblox games - Reddit**

But, there are still some good games to be found. So, here is a list of the ones I enjoy and encourage people to play. Let me know if you have any additions: Phantom Forces: Probably the most well ...

*Good free video editor apps/sites (Windows - NO WATERMARK)*

Nov 20, 2021 · Hello everyone, I'm a student and if it isn't obvious from the fact that I'm a student, I'm broke. I don't have any money to purchase any cool editing softwares like filmora. I just want ...

[Back to Home](#)