

almost equivalent strings hackerrank solution python

Almost Equivalent Strings HackerRank Solution Python: A Comprehensive Guide

Author: Dr. Anya Sharma, PhD in Computer Science, specializing in Algorithm Optimization and Data Structures. Five years experience as a lead software engineer at a major tech firm, and frequent contributor to online coding communities.

Keyword: almost equivalent strings hackerrank solution python

Summary: This article provides a detailed explanation and several solutions to the "Almost Equivalent Strings" problem on HackerRank, focusing on Python implementations. We'll explore the problem statement, different approaches to solving it efficiently, and analyze their time and space complexities. We'll cover techniques like using dictionaries, counters, and optimizing for speed, providing clear code examples and in-depth explanations to help programmers of all levels understand and implement the solution. We will also discuss potential edge cases and how to handle them effectively.

Publisher: TechVerse Publications – A reputable publisher known for its high-quality technical articles and tutorials catering to a broad audience of programmers and computer science enthusiasts.

Editor: Rajesh Kumar, Senior Technical Editor with over 10 years experience editing technical documentation and programming articles. Expertise in Python, data structures, and algorithms.

Understanding the "Almost Equivalent Strings" Problem

The HackerRank "Almost Equivalent Strings" problem presents a challenge where you need to determine if two strings are "almost equivalent." Two strings are considered almost equivalent if the absolute difference in the frequency of each character between the two strings is less than or equal to one. This means that for every character present in either string, the difference in its count between the two strings should be at most 1.

This problem requires efficient character counting and comparison techniques. A brute-force approach would be highly inefficient, especially for larger strings. Therefore, the focus should be on optimizing the solution for both time and space complexity.

Python Solutions for "Almost Equivalent Strings"

We'll explore several Python solutions, starting with a more straightforward approach and progressing to more optimized versions.

Solution 1: Using Dictionaries (Basic Approach)

This approach utilizes Python dictionaries to store character frequencies for each string. It's relatively easy to understand but might not be the most efficient for extremely large strings.

```
```python
def areAlmostEquivalent(s1, s2):
 freq1 = {}
 freq2 = {}

 for char in s1:
 freq1[char] = freq1.get(char, 0) + 1
 for char in s2:
 freq2[char] = freq2.get(char, 0) + 1

 all_chars = set(freq1.keys()).union(set(freq2.keys()))

 for char in all_chars:
 diff = abs(freq1.get(char, 0) - freq2.get(char, 0))
 if diff > 1:
 return "No"

 return "Yes"
```

### Example Usage

```
s1 = "abcc"
s2 = "abbc"
print(areAlmostEquivalent(s1, s2)) # Output: Yes

s1 = "abcc"
s2 = "abdd"
print(areAlmostEquivalent(s1, s2)) # Output: No

```
```

Solution 2: Using `collections.Counter` (More Efficient)

Python's `collections.Counter` object provides a more efficient way to count character frequencies. This approach reduces code complexity and improves performance.

```
```python
from collections import Counter

def areAlmostEquivalentOptimized(s1, s2):
 count1 = Counter(s1)
 count2 = Counter(s2)

 all_chars = set(count1.keys()).union(count2.keys())

 for char in all_chars:
 diff = abs(count1[char] - count2[char])
 if diff > 1:
 return "No"
 return "Yes"
```
```

Example Usage (same output as Solution 1)

```
s1 = "abcc"
s2 = "abbc"
print(areAlmostEquivalentOptimized(s1, s2)) # Output: Yes

s1 = "abcc"
s2 = "abdd"
print(areAlmostEquivalentOptimized(s1, s2)) # Output: No
```
```

## Solution 3: Further Optimization (for extremely large strings)

For extremely large strings, even `Counter` might show some performance limitations. We can further optimize by processing characters concurrently, although the benefits might only be noticeable for extremely large inputs. This would typically involve using multiprocessing libraries like `multiprocessing`. However, due to the overhead associated with multiprocessing for smaller inputs, we won't demonstrate this here, as it would add unnecessary complexity.

# Time and Space Complexity Analysis

Solution 1 (Dictionaries): Time complexity is  $O(m + n)$ , where  $m$  and  $n$  are the lengths of the strings. Space complexity is  $O(k)$ , where  $k$  is the number of unique characters.

Solution 2 (Counter): Time complexity remains  $O(m + n)$ . Space complexity is also  $O(k)$ .

Solution 3 (Hypothetical Multiprocessing): While potentially reducing the wall-clock time for extremely large strings, the asymptotic time complexity would remain  $O(m + n)$ , although the constant factor would be lower.

## Handling Edge Cases

It's crucial to handle edge cases such as empty strings or strings with only one character. Both solutions presented above gracefully handle these cases due to the use of `get()` method in dictionaries and the behavior of `Counter`.

## Conclusion

Solving the "Almost Equivalent Strings" HackerRank problem efficiently involves careful consideration of data structures and algorithms. While a straightforward dictionary-based approach is understandable, utilizing Python's `collections.Counter` provides a significant performance boost without compromising readability. For extremely large datasets, parallel processing could further optimize performance; however, this is generally only necessary for exceptional input sizes. Choosing the appropriate solution depends on the expected scale of the input data. This comprehensive guide should equip you to tackle this HackerRank problem and similar string manipulation challenges effectively.

## FAQs

1. What is the time complexity of the optimized solution?  $O(m + n)$ , where  $m$  and  $n$  are the lengths of the input strings.

1. What is the space complexity of the optimized solution?  $O(k)$ , where  $k$  is the number of unique characters in both strings.

1. Can this problem be solved using only lists? Yes, but it would be less

efficient than using dictionaries or Counters.

1. How does ``collections.Counter`` improve performance? ``Counter`` is specifically designed for counting hashable objects, making it significantly faster than manually creating and updating dictionaries for character counts.
1. What are some common errors when solving this problem? Forgetting to handle edge cases (empty strings, strings with one character), or not considering the absolute difference in character frequencies.
1. Can this solution be adapted to other programming languages? Yes, the core logic (character counting and comparison) can be easily translated into other languages.
1. What if the strings contain non-ASCII characters? The solutions will still work correctly assuming the character encoding is consistent.
1. How can I further improve the efficiency for extremely large inputs? Consider using multiprocessing to distribute the character counting task across multiple cores.
1. Are there other similar problems on HackerRank? Yes, many HackerRank problems involve string manipulation and efficient counting techniques. Search for problems related to string frequency analysis or character comparisons.

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classify new inputs based on prior training on a sample of similar inputs?

**STAGE 2: Acquire. Search. Create. Catalog.** This stage involves data acquisition strategies including searching for datasets on popular data sources or internally within your organisation. We may also create a dataset based on external or internal data sources. The acquire stage may feedback to the question stage, refining our problem and solution definition based on the constraints and characteristics of the acquired datasets.

**STAGE 3: Wrangle. Prepare. Cleanse.** The data wrangle phase prepares and cleanses our datasets for our project goals. This workflow stage starts by importing a dataset, exploring the dataset for its features and available samples, preparing the dataset using appropriate data types and data structures, and optionally cleansing the data set for creating model training and solution testing samples. The wrangle stage may circle back to the acquire stage to identify complementary datasets to combine and complete the existing dataset.

**STAGE 4: Analyse. Patterns. Explore.** The analyse phase explores the given datasets to determine patterns, correlations, classification, and nature of the dataset. This helps determine choice of model algorithms and strategies that may work best on the dataset. The analyse stage may also visualize the dataset to determine such patterns.

**STAGE 5: Model. Predict. Solve.** The model stage uses prediction and solution algorithms to train on a given dataset and apply this training to solve for a given problem.

**STAGE 6: Visualize. Report. Present.** The visualization stage can help data wrangling, analysis, and modeling stages. Data can be visualized using charts and plots suiting the characteristics of the dataset and the desired results. Visualization stage may also provide the inputs for the supply stage.

**STAGE 7: Supply. Products. Services.** Once we are ready to monetize our data science solution or derive further return on investment from our projects, we need to think about distribution and data supply chain. This stage circles back to the acquisition stage. In fact we are acquiring data from someone else's data supply chain.

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- Wrangle—transform your datasets into a form convenient for analysis
- Program—learn powerful R tools for solving data problems with greater clarity and ease
- Explore—examine your data, generate hypotheses, and quickly test them
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- Leverage fast, robust data structures in pandas to gain useful insights from your data
- Practical, easy to implement recipes for quick solutions to common problems in data using pandas

**Who This Book Is For** This book is for data scientists, analysts and Python developers who wish to explore data analysis and scientific computing in a practical, hands-on manner. The recipes included in this book are suitable for both novice and advanced users, and contain helpful tips, tricks and caveats wherever necessary. Some understanding of pandas will be helpful, but not mandatory.

**What You Will Learn** Master the fundamentals of pandas to quickly begin exploring any dataset

- Isolate any subset of data by properly selecting and querying the data
- Split data into independent groups before applying aggregations and transformations to each group
- Restructure data into tidy form to make data analysis and visualization easier
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- Leverage the power of LinkedIn,

Meetups, and social media. • Handle follow-up emails and phone calls. • Prepare for the multiple types of interviews you will encounter, whether via phone, video conference, or in person. • Strategically apply to jobs so you can maximize your salary demands during negotiation. • Efficiently organize and prioritize the jobs you've applied to. • Craft results-driven email check-ins with your potential employer. • Reduce your vulnerabilities for discrimination. • And much, much more! No awkward whiteboard interviews. No hour-long explanation of Big O notation. Just practical, actionable steps that will put you far ahead of the pack when it comes to getting a job in web development. Now let's go get that job! Just finished reading your book and all I can say is WOW! Mind you since May of 2016 I have taken about 6 online courses specifically looking for employment and around three of them were specifically for either how to get an IT or Web Developer job. These courses cannot hold a candle to the majority of the information you put in this book! -George M., Web Developer

**WHY I WROTE THIS BOOK:** When I started my web development journey, I was a lost hiker in the digital woods. I knew I wanted to build web apps, but didn't know what those people called themselves. Were they website builders? Programmers? The term 'software engineer' floated around a lot online - was that my aspiration? Since I didn't know exactly what I was looking for, I spent a lot of time reading and watching materials that were nothing but discouraging: mock Google coding interviews with whiteboards and markers. Lots of articles and videos that name-dropped things like binary trees, Big O notation, and time complexity. Forum post upon forum post that gave away actual coding interview questions from the biggest tech companies in the world like Facebook, Google, and Microsoft. Making things worse, some web developers I had discovered on YouTube were talking about a really good, popular book for coding interviews. I checked it out and once again my stomach sank. "I'm never going to make it in this field," I said to myself. "I've been studying and practicing and building projects for months, and I still have no idea what these people are talking about." What they didn't tell me was that the book is geared towards senior software engineers trying to get a job with Amazon and Google. I wanted to quit my coding journey. In fact, I did quit. The difference was, I didn't stay quit. Something told me to keep pushing forward, keep building projects to put in my portfolio and Github, keep reaching out and trying to find clients who needed websites. I kept pushing until I got a job as a fullstack web developer at a data company. As it turns out, the internet isn't very generous to our career field. Beginners are especially marginalized. There aren't any quality one-stop resources for discovering one of the most important questions - if not the most important question - web developers have. "How do I get a job in this field?" I wanted to change the junior web developer tech landscape with this book. My goal is for every junior developer who reads this to find a job. And if you take the recommended actions in this book, you can do it.

**almost equivalent strings hackerrank solution python:** *Learn to Program* Chris Pine, 2021-06-17 It's easier to learn how to program a computer than it has ever been before. Now everyone can learn to write programs for themselves - no previous experience is necessary. Chris Pine takes a thorough, but lighthearted approach that teaches you the fundamentals of computer programming, with a minimum of fuss or bother. Whether you are interested in a new hobby or a new career, this book is your doorway into the world of programming. Computers are everywhere, and being able to program them is more important than it has ever been. But since most books on programming are written for other programmers, it can be hard to break in. At least it used to be. Chris Pine will teach you how to program. You'll learn to use your computer better, to get it to do what you want it to do. Starting with small, simple one-line programs to calculate your age in seconds, you'll see how to write interactive programs, to use APIs to fetch live data from the internet, to rename your photos from your digital camera, and more. You'll learn the same technology used to drive modern dynamic websites and large, professional applications. Whether you are looking for a fun new hobby or are interested in entering the tech world as a professional, this book gives you a solid foundation in programming. Chris teaches the basics, but also shows you how to think like a programmer. You'll learn through tons of examples, and through programming challenges throughout the book. When you finish, you'll know how and where to learn more - you'll

be on your way. What You Need: All you need to learn how to program is a computer (Windows, macOS, or Linux) and an internet connection. Chris Pine will lead you through setting set up with the software you will need to start writing programs of your own.

**almost equivalent strings hackerrank solution python:** *Effective Python* Brett Slatkin, 2015 *Effective Python* will help students harness the full power of Python to write exceptionally robust, efficient, maintainable, and well-performing code. Utilizing the concise, scenario-driven style pioneered in Scott Meyers's best-selling *Effective C++*, Brett Slatkin brings together 53 Python best practices, tips, shortcuts, and realistic code examples from expert programmers. Each section contains specific, actionable guidelines organized into items, each with carefully worded advice supported by detailed technical arguments and illuminating examples.

**almost equivalent strings hackerrank solution python:** *A Smarter Way to Learn Python* Mark Myers, 2017-08-09 I designed a learning system for myself that quadrupled my aptitude for learning computer languages. It worked so well for me that I've used it to teach coding to grandmothers, cab drivers, musicians, and 50,000 other newbies. Washington University research shows that a key teaching method I use--interactive recall practice--improves learning performance 400 percent. Computer languages are not inherently hard to understand, even for non-techies. Remembering is the problem. Research shows that you will remember everything if you're repeatedly asked to recall it. That's the beauty of flash cards. But technology offers an even better way to make information stick. With my book you get almost a thousand interactive exercises--they're free online--that embed the whole book in your memory. Algorithms check your work to make sure you know what you think you know. When you stumble, you do the exercise again. You keep trying until you know the chapter cold. The exercises keep you engaged, give you extra practice where you're shaky, and prepare you for each next step. Every lesson is built on top of a solid foundation that you and I have carefully constructed. Each individual step is small. But all the little steps add up to real knowledge--knowledge that you retain. You don't need to be a computer genius to learn Python. You just need to be smart about how you learn it.--Amazon.com description.

**almost equivalent strings hackerrank solution python:** *A Byte of Python* C. H. C H Swaroop, James Zimmerhoff, 2017-10-02 The programming language Python was conceived in the late 1980s, [1] and its implementation was started in December 1989[2] by Guido van Rossum at CWI in the Netherlands as a successor to the ABC (programming language) capable of exception handling and interfacing with the Amoeba operating system.[3] Van Rossum is Python's principal author, and his continuing central role in deciding the direction of Python is reflected in the title given to him by the Python community, Benevolent Dictator for Life (BDFL).[4][5] Python was named for the BBC TV show Monty Python's Flying Circus.[6] Python 2.0 was released on October 16, 2000, with many major new features, including a cycle-detecting garbage collector (in addition to reference counting) for memory management and support for Unicode. However, the most important change was to the development process itself, with a shift to a more transparent and community-backed process.[7] Python 3.0, a major, backwards-incompatible release, was released on December 3, 2008[8] after a long period of testing. Many of its major features have also been backported to the backwards-compatible Python 2.6 and 2.7.[9] In February 1991, van Rossum published the code (labeled version 0.9.0) to alt.sources.[10] Already present at this stage in development were classes with inheritance, exception handling, functions, and the core datatypes of list, dict, str and so on. Also in this initial release was a module system borrowed from Modula-3; Van Rossum describes the module as one of Python's major programming units.[1] Python's exception model also resembles Modula-3's, with the addition of an else clause.[3] In 1994 comp.lang.python, the primary discussion forum for Python, was formed, marking a milestone in the growth of Python's userbase.[1] Python reached version 1.0 in January 1994. The major new features included in this release were the functional programming tools lambda, map, filter and reduce. Van Rossum stated that Python acquired lambda, reduce(), filter() and map(), courtesy of a Lisp hacker who missed them and submitted working patches.[11] The last version released while Van Rossum was at CWI was Python 1.2. In 1995, Van Rossum continued his work on Python at the Corporation

for National Research Initiatives (CNRI) in Reston, Virginia whence he released several versions. By version 1.4, Python had acquired several new features. Notable among these are the Modula-3 inspired keyword arguments (which are also similar to Common Lisp's keyword arguments) and built-in support for complex numbers. Also included is a basic form of data hiding by name mangling, though this is easily bypassed.[12] During Van Rossum's stay at CNRI, he launched the Computer Programming for Everybody (CP4E) initiative, intending to make programming more accessible to more people, with a basic literacy in programming languages, similar to the basic English literacy and mathematics skills required by most employers. Python served a central role in this: because of its focus on clean syntax, it was already suitable, and CP4E's goals bore similarities to its predecessor, ABC. The project was funded by DARPA.[13] As of 2007, the CP4E project is inactive, and while Python attempts to be easily learnable and not too arcane in its syntax and semantics, reaching out to non-programmers is not an active concern.[14] Here are what people are saying about the book: This is the best beginner's tutorial I've ever seen! Thank you for your effort. -- Walt Michalik The best thing i found was A Byte of Python, which is simply a brilliant book for a beginner. It's well written, the concepts are well explained with self evident examples. -- Joshua Robin Excellent gentle introduction to programming #Python for beginners -- Shan Rajasekaran Best newbie guide to python -- Nickson Kaigi start to love python with every single page read -- Herbert Feutl perfect beginners guide for python, will give u key to unlock magical world of python

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**almost equivalent strings hackerrank solution python: A Primer on Scientific Programming with Python** Hans Petter Langtangen, 2016-07-28 The book serves as a first introduction to computer programming of scientific applications, using the high-level Python language. The exposition is example and problem-oriented, where the applications are taken from mathematics, numerical calculus, statistics, physics, biology and finance. The book teaches Matlab-style and procedural programming as well as object-oriented programming. High school mathematics is a required background and it is advantageous to study classical and numerical one-variable calculus in parallel with reading this book. Besides learning how to program computers, the reader will also learn how to solve mathematical problems, arising in various branches of science and engineering, with the aid of numerical methods and programming. By blending programming, mathematics and scientific applications, the book lays a solid foundation for practicing computational science. From the reviews: Langtangen ... does an excellent job of introducing programming as a set of skills in

problem solving. He guides the reader into thinking properly about producing program logic and data structures for modeling real-world problems using objects and functions and embracing the object-oriented paradigm. ... Summing Up: Highly recommended. F. H. Wild III, Choice, Vol. 47 (8), April 2010 Those of us who have learned scientific programming in Python 'on the streets' could be a little jealous of students who have the opportunity to take a course out of Langtangen's Primer." John D. Cook, The Mathematical Association of America, September 2011 This book goes through Python in particular, and programming in general, via tasks that scientists will likely perform. It contains valuable information for students new to scientific computing and would be the perfect bridge between an introduction to programming and an advanced course on numerical methods or computational science. Alex Small, IEEE, CiSE Vol. 14 (2), March /April 2012 "This fourth edition is a wonderful, inclusive textbook that covers pretty much everything one needs to know to go from zero to fairly sophisticated scientific programming in Python..." Joan Horvath, Computing Reviews, March 2015

### **almost equivalent strings hackerrank solution python: 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.

### **almost equivalent strings hackerrank solution python: Code** Charles Petzold, 2022-08-02

The classic guide to how computers work, updated with new chapters and interactive graphics For me, Code was a revelation. It was the first book about programming that spoke to me. It started with a story, and it built up, layer by layer, analogy by analogy, until I understood not just the Code, but the System. Code is a book that is as much about Systems Thinking and abstractions as it is about code and programming. Code teaches us how many unseen layers there are between the computer systems that we as users look at every day and the magical silicon rocks that we infused with lightning and taught to think. - Scott Hanselman, Partner Program Director, Microsoft, and host of Hanselminutes Computers are everywhere, most obviously in our laptops and smartphones, but also our cars, televisions, microwave ovens, alarm clocks, robot vacuum cleaners, and other smart appliances. Have you ever wondered what goes on inside these devices to make our lives easier but occasionally more infuriating? For more than 20 years, readers have delighted in Charles Petzold's illuminating story of the secret inner life of computers, and now he has revised it for this new age of computing. Cleverly illustrated and easy to understand, this is the book that cracks the mystery. You'll discover what flashlights, black cats, seesaws, and the ride of Paul Revere can teach you about computing, and how human ingenuity and our compulsion to communicate have shaped every electronic device we use. This new expanded edition explores more deeply the bit-by-bit and gate-by-gate construction of the heart of every smart device, the central processing unit that combines the simplest of basic operations to perform the most complex of feats. Petzold's companion website, CodeHiddenLanguage.com, uses animated graphics of key circuits in the book to make computers even easier to comprehend. In addition to substantially revised and updated content, new chapters include: Chapter 18: Let's Build a Clock! Chapter 21: The Arithmetic Logic Unit Chapter 22: Registers and Busses Chapter 23: CPU Control Signals Chapter 24: Jumps, Loops, and Calls Chapter 28: The World Brain From the simple ticking of clocks to the worldwide hum of the internet,

Code reveals the essence of the digital revolution.

**almost equivalent strings hackerrank solution python: Head First Learn to Code** Eric Freeman, 2018-01-02 What will you learn from this book? It's no secret the world around you is becoming more connected, more configurable, more programmable, more computational. You can remain a passive participant, or you can learn to code. With Head First Learn to Code you'll learn how to think computationally and how to write code to make your computer, mobile device, or anything with a CPU do things for you. Using the Python programming language, you'll learn step by step the core concepts of programming as well as many fundamental topics from computer science, such as data structures, storage, abstraction, recursion, and modularity. Why does this book look so different? Based on the latest research in cognitive science and learning theory, Head First Learn to Code uses a visually rich format to engage your mind, rather than a text-heavy approach that puts you to sleep. Why waste your time struggling with new concepts? This multi-sensory learning experience is designed for the way your brain really works.

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Arrays12. Strings and Enums13. Inheritance14. Polymorphism15. Exception Handling16. Effective Input/ Output17. Multithreading In Java18. Generics19. Collection Classes20. User Interfaces21. JDBC22. Index About the authorYashavant Kanetkar Through his books and Quest Video Courses on C, C++, Java, Python, Data Structures, .NET, IoT, etc. Yashavant Kanetkar has created, molded and groomed lacs of IT careers in the last three decades. Yashavant's books and Quest videos have made a significant contribution in creating top-notch IT manpower in India and abroad. Yashavant's books are globally recognized and millions of students/professionals have benefitted from them. Yashavant's books have been translated into Hindi, Gujarati, Japanese, Korean and Chinese languages. Many of his books are published in India, USA, Japan, Singapore, Korea and China. Yashavant is a much sought after speaker in the IT field and has conducted seminars/workshops at TedEx, IITs, IIITs, NITs and global software companies. Yashavant has been honored with the prestigious e;Distinguished Alumnus Awarde; by IIT Kanpur for his entrepreneurial, professional and academic excellence. This award was given to top 50 alumni of IIT Kanpur who have made a significant contribution towards their profession and betterment of society in the last 50 years. In recognition of his immense contribution to IT education in India, he has been awarded the e;Best .NET Technical Contributore; and e;Most Valuable Professionale; awards by Microsoft for 5 successive years. Yashavant holds a BE from VJTI Mumbai and M.Tech. from IIT Kanpur. Yadhavant's current affiliations include being a Director of KICIT Pvt Ltd. And KSET Pvt Ltd. His Linkedin profile: [linkedin.com/in/yashavant-kanetkar-9775255](https://www.linkedin.com/in/yashavant-kanetkar-9775255)

**almost equivalent strings hackerrank solution python: C# . Net** Yashavant Kanetkar, **almost equivalent strings hackerrank solution python: 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.

**almost equivalent strings hackerrank solution python: 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](https://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.

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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.

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**almost equivalent strings hackerrank solution python: Algorithms** Sanjoy Dasgupta, Christos H. Papadimitriou, Umesh Virkumar Vazirani, 2006 This text, extensively class-tested over a decade at UC Berkeley and UC San Diego, explains the fundamentals of algorithms in a story line that makes the material enjoyable and easy to digest. Emphasis is placed on understanding the crisp mathematical idea behind each algorithm, in a manner that is intuitive and rigorous without being unduly formal. Features include: The use of boxes to strengthen the narrative: pieces that provide historical context, descriptions of how the algorithms are used in practice, and excursions for the mathematically sophisticated. Carefully chosen advanced topics that can be skipped in a standard one-semester course but can be covered in an advanced algorithms course or in a more leisurely two-semester sequence. An accessible treatment of linear programming introduces students to one of the greatest achievements in algorithms. An optional chapter on the quantum algorithm for factoring provides a unique peephole into this exciting topic. In addition to the text DasGupta also offers a

Solutions Manual which is available on the Online Learning Center. Algorithms is an outstanding undergraduate text equally informed by the historical roots and contemporary applications of its subject. Like a captivating novel it is a joy to read. Tim Roughgarden Stanford University

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**almost equivalent strings hackerrank solution python: How Can Self-learners Learn Programming in the Most Efficient Way? A Pragmatic Approach** Sebastien Phlix, 2016-12-13 Master's Thesis from the year 2016 in the subject Computer Science - Programming, grade: 20/20, Ecole des hautes etudes commerciales de Paris (HEC Entrepreneurs), language: English, abstract: This paper provides a structured approach for self-learning programming for free on the internet. Its recommendations are based on a review of the existing academic literature which is complemented by the analysis of numerous contributions by software developers, self-learners, and teachers of programming. Additionally, it incorporates effective learning techniques derived from psychological research. Its intended readers are primarily entrepreneurs and 'startup people' who are driven to build new businesses with code, although the proposed approach is also transferable to other domains and audiences. The single most important factor for succeeding in learning programming has been found to be of human nature: learner motivation and persistence. While most beginners and the majority of academic contributions focus mostly on technical aspects such as which language to learn first, or which learning resources to use, this paper analyzes the learning process itself. Learning programming is thus divided into three main steps: First, I highlight the importance of setting a strong learning goal for motivation, and provide a big-picture overview of what 'learning programming' encompasses to structure the approach. Second, I provide learners with recommendations as to which language to learn first - there is no one 'best' choice - as well as how and where to find effective learning resources. Lastly, the paper concludes with tips for optimizing the learning process by introducing effective learning techniques, highlighting the importance of programming practice, and collecting additional advice from programmers and self-learners.

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