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## C++ Programming Examples on Set & String Problems & Algorithms

This section covers C++ Programming Examples on Set & String Problems & Algorithms. Every example program includes the description of the program, C++ code as well as output of the program. Here is the listing of C++ programming examples:

### 1. C++ Programming examples on “Set Cover”

- C++ Program to Find the Smallest Set of Vertices that will Cover Each Edge atleast once.
- C++ Program to Find an Optimal Solution for Set Cover Problem Using Backtracking
- C++ Program to Use Integer Programming Formula to Solve the Set Cover Problem
- C++ Program to Solve Set Cover Problem assuming at max 2 Elements in a Subset
- C++ Program to Implement Boolean Logic Minimization Using Set Cover Problem
- C++ Program to Use Greedy Approach to Solve Set Cover Problem

### 2. C++ Programming examples on “Set Packing”

- C++ Program to Implement Exhaustive Search Algorithm for Set Packing
- C++ Program to Implement Heuristic Approach to Solve Set Packing
- C++ Program to Check if a Set Packing is Possible of Size k for a Given Pair of Universe U and a Family S of Subsets of U (U,S)

### 3. C++ Programming examples on “String Matching”

**C++ Program to Implement the String Search Algorithm for Short Text Sizes**  
(<http://www.sanfoundry.com/cpp-program-implement-string-search-algorithm-short-text-sizes/>)

C++ Program to Implement Knuth-Morris-Pratt Algorithm for String Matching  
(<http://www.sanfoundry.com/cpp-program-implement-kruth-morris-patt-algorithm-kmp/>)

C++ Program to Implement Z Algorithm for String Matching (<http://www.sanfoundry.com/cpp-program-implement-z-algorithm/>)

C++ Program to Implement Boyer-Moore Algorithm for String Matching  
(<http://www.sanfoundry.com/cpp-program-implement-boyer-moore-algorithm-string-matching/>)

C++ Program to Repeatedly Search the Same Text (such as Bible by building a Data Structure)  
(<http://www.sanfoundry.com/cpp-program-repeatedly-search-same-text-such-as-bible-by-building-data-structure/>)

C++ Program to Implement Aho-Corasick Algorithm for String Matching  
(<http://www.sanfoundry.com/cpp-program-implement-aho-corasick-algorithm-string-matching/>)

C++ Program to Implement the Program Used in grep/egrep/fgrep (<http://www.sanfoundry.com/cpp-program-implement-program-used-in-grep-egrep-fgrep/>)

C++ Program to Implement Rabin-Karp Method for String Matching (<http://www.sanfoundry.com/cpp-program-implement-rabinkarp-algorithm/>)

C++ Program to Perform Naive String Matching (<http://www.sanfoundry.com/cpp-program-perform-naive-string-matching/>)

C++ Program to Perform Finite State Automaton based Search (<http://www.sanfoundry.com/cpp-program-perform-finite-state-automaton-based-search/>)

C++ Program to Implement Bitap Algorithm for String Matching (<http://www.sanfoundry.com/cpp-program-implement-bitap-algorithm-string-matching/>)

C++ Program to Implement Commentz-Walter Algorithm

C++ Program to Implement Zhu–Takaoka String Matching Algorithm

C++ Program to Perform String Matching Using String Library (<http://www.sanfoundry.com/cpp-program-perform-string-matching-using-string-library/>)

C++ Program to Implement String Matching Using Vectors (<http://www.sanfoundry.com/cpp-program-implement-string-matching-using-vectors/>)

4. C++ Programming examples on “Approximate String Matching”

C++ Program to Use Dynamic Programming to Solve Approximate String Matching

C++ Program to Implement Bit Parallel Algorithm for approximate String Matching

C++ Program to Implement Hirschberg's Clever Recursive Algorithm

C++ Program to Implement Brute-Force Approach for Approximate String Matching

C++ Program to Implement Levenshtein Distance Computing Algorithm  
(<http://www.sanfoundry.com/cpp-program-implement-levenshtein-distance-computing-algorithm/>)

C++ Program to Implement Wagner and Fisher Algorithm for online String Matching  
(<http://www.sanfoundry.com/cpp-program-implement-wagner-fisher-algorithm-online-string-matching/>)

5. C++ Programming examples on “Cryptography”

C++ Program to Implement Caesar Cypher (<http://www.sanfoundry.com/cpp-program-implement-caesar-cypher/>)

C++ Program to Encode a Message Using Playfair Cipher (<http://www.sanfoundry.com/cpp-program-encode-message-using-playfair-cipher/>)

C++ Program to Decode a Message Encoded Using Playfair Cipher (<http://www.sanfoundry.com/cpp-program-decode-message-encoded-using-playfair-cipher/>)

C++ Program to Implement the One Time Pad Algorithm (<http://www.sanfoundry.com/cpp-program-implement-one-time-pad-algorithm/>)

C++ Program to Implement the MD5 Algorithm

C++ Program to Implement the RSA Algorithm (<http://www.sanfoundry.com/cpp-program-implement-rsa-algorithm/>)

C++ Program to Implement the Checksum Method for Small String Messages and Detect If the Received message is same as the Transmitted

C++ Program to Implement the Monoalphabetic Cypher (<http://www.sanfoundry.com/cpp-program-implement-monoalphabetic-cypher/>)

C++ Program to Implement the Hill Cypher (<http://www.sanfoundry.com/cpp-program-implement-hill-cypher/>)

C++ Program to Implement the Vigenere Cypher (<http://www.sanfoundry.com/cpp-program-implement-vigenere-cypher/>)

C++ Program to Perform Cryptography Using Transposition Technique  
(<http://www.sanfoundry.com/cpp-program-perform-cryptography-using-transposition-technique/>)

C++ Program to Implement Affine Cipher (<http://www.sanfoundry.com/cpp-program-implement-affine-cipher/>)

6. C++ Programming examples on “Finite State Machine Minimization”

C++ Program to Minimize the Number of States in a Deterministic Finite Automata

C++ Program to Construct DFA from NFA (<http://www.sanfoundry.com/cpp-program-construct-dfa-from-nfa/>)

C++ Program to Construct NFA for a Given Expression

### 7 C++ Programming examples on “Longest Common SubString/SubSequence”

- C++ Program to Implement Kadane’s Algorithm (<http://www.sanfoundry.com/cpp-program-implement-kadanes-algorithm/>)
- C++ Program to Find the Longest Subsequence Common to All Sequences in a Set of Sequences (<http://www.sanfoundry.com/cpp-program-find-length-longest-common-substring/>)
- C++ Program to Find the Longest Increasing Subsequence of a Given Sequence (<http://www.sanfoundry.com/cpp-program-find-longest-increasing-subsequence-given-sequence/>)
- C++ Program to Find the Longest Prefix Matching of a Given Sequence (<http://www.sanfoundry.com/cpp-program-implement-longest-prefix-matching/>)
- C++ Program to Find the Shortest Supersequence that Contains Two or more Sequences as Subsequences

If you want to learn implementations of all algorithms and programs in C++, **Here’s the list of 1000 C++ Algorithms, Problems & Programming Examples** (<http://www.sanfoundry.com/1000-cpp-algorithms-problems-programming-examples/>).

#### Deep Dive @ Sanfoundry:

1. Longest Increasing Subsequence Problem – Dynamic Programming Solutions (<http://www.sanfoundry.com/dynamic-programming-solutions-longest-increasing-subsequence-problem/>)
2. C++ Program to Find the Longest Increasing Subsequence of a Given Sequence (<http://www.sanfoundry.com/cpp-program-find-longest-increasing-subsequence-given-sequence/>)
3. Java Program to Use Dynamic Programming to Solve Approximate String Matching (<http://www.sanfoundry.com/java-program-use-dynamic-programming-solve-approximate-string-matching/>)
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6. C++ Program to Implement Bitap Algorithm for String Matching (<http://www.sanfoundry.com/cpp-program-implement-bitap-algorithm-string-matching/>)
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8. Longest Palindromic Subsequence Problem – Dynamic Programming Solutions (<http://www.sanfoundry.com/dynamic-programming-solutions-longest-palindromic-subsequence-problem/>)
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#### DO YOU REALLY KNOW YOUR MOBILES?



How many times does the average person unlock their phone a day?

15



- A 20
- B 110
- C 55
- D 201

Your Score 0 Question 1/10



Manish Bhojasia (<http://www.sanfoundry.com/about/>), a technology veteran with 20+ years @ Cisco & Wipro, is Founder and CTO at Sanfoundry. He is Linux Kernel Developer and SAN Architect and is passionate about competency developments in these areas. He lives in Bangalore and delivers focused training sessions to IT professionals in Linux Kernel, Linux Debugging, Linux Device Drivers, Linux Networking, Linux Storage & Cluster Administration, Advanced C Programming, SAN Storage Technologies, SCSI Internals and Storage Protocols such as iSCSI & Fiber Channel. Stay connected with him below:  
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*The course was well designed and coverage was satisfactorily deep. The linux programming assignments were designed to get a feel of real time issues and covered lot of areas of uncertainty. The project work suggested at the end of the course was invaluable.*

— Somenath - EMC

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