STL in C++

Assignment-1: Template Function

1. Define a function template which takes two arguments of same type and return the greater value.
2. Define a function template which takes two arguments of same type and return the smaller value.
3. Define a function template to print values of an array of any type.
4. Define a function template to sort an array of any type.
5. Define a function template to find the greatest element among the values stored in an array of any type.

STL in C++

Assignment-2: Template Class

1. Define data structure Array using class template
2. Define data structure Dynamic Array using class template
3. Define data structure Linked List using class template
4. Define data structure Doubly Linked List using class template
5. Define data structure Stack using class template
6. Define data structure Queue using class template

STL in C++

Assignment-3: array

1. Create an array object for int values of size 5. Print array elements from right to left using explicit iterator
2. Create an array object for float values of size 5. Calculate average of numbers and display it.
3. Create an array object for int values of size 10. Take input from user. Find the greatest element of the array.
4. Create an array object for Complex type values of size 5. Write a function to input values, display values. Also define a method to calculate sum of all the complex numbers.
5. Create an array for int values of size 10. Initialise it with some values. Now sort array elements.

STL in C++

Assignment-4: vector

1. Create a vector object and initialise it with 5 integer values. Display vector values using subscript operator.
2. Create a vector object and initialise it with 5 float values. Display vector values using at() method.
3. Create a vector object and initialise it with 5 string values. Display vector values using implicit iterator.
4. Create a vector object and initialise it with 5 integer values. Display vector values using explicit iterator.
5. Write a C++ function that returns the elements in a vector that are strictly smaller than their adjacent left and right neighbours.

STL in C++

Assignment-5: vector

1. Write a function to delete all the values from the first negative value occurred in a given vector of integers.
2. Create a vector object with three integer values. Now insert 25 three times just before the last element (call insert method only once).
3. Create a vector of vectors of integer values from a given vector of integers such that each vector inside a vector contains sorted integer elements that appears in the given vector in consecutive places. For example, given vector has {2,4,10,5,7,6,15,20,3,9} values then the resulting vector contains 4 vectors {2,4,10}, {5,7}, {6,15,20} and {3,9}
4. Given vector has integer values stored in it. Write a function to delete all the prime numbers from the vector.
5. Create a vector from the given vector of three vectors of integers, such that take first 3 values from the first vector, last two values of the second vector and all the elements of third vector

STL in C++

Assignment-6: list

1. Create a list of string values and display all the elements in reverse order.
2. Write a function to create a list from a given vector of integers.
3. Find the greatest number in a given list of integers.
4. Write a function to sort a list of 10 integer values.
5. Create a list from a given vector of integer values, such that even values are stored at the front of the list and odd values are stored at the end of the list.

STL in C++

Assignment-7: forward_list

1. Create an empty forward_list of int type values. Now assign four 10s and three 5s in it.
2. Create a forward_list of strings and display them in reverse order.
3. Write a function to find the total number of integers present in the forward_list which are greater than a given number.
4. Write a function to erase first element from the given forward _list which is just greater than the given element.
5. Create a a forward_list to represent a polynomial expression.

STL in C++

Assignment-8: deque

1. Create a deque of int values taken from user and display them using explicit iterator.
2. Find the greatest element in a deque of int values.
3. Write a function to count frequency of all the elements of the deque.
4. Write a function to find the largest sorted subsequence in a deque of int values
5. Write a function to find the max frequency element in the deque of int values

STL in C++

Assignment-9: stack

1. Check if a string is a palindrome using stack.
2. Reverse a stack of strings.
3. Check for balanced brackets in an expression. For example, input is “[{(){(){}}]”, output is balanced. Input is “[{()]}”, output is not balanced.
4. Write a function to delete middle element of the stack.
5. Implement Tower of Hanoi problem using stack through iteration.

STL in C++

Assignment-10: queue

1. Implement stack using queue.
2. Implement priority queue with the given priority range from 1 to N. [Use vector of queues]
3. Given an integer k and a queue of integers. Write a program to reverse the order of the first k elements of the queue.
4. Implement breadth first search algorithm to traverse a graph.
5. Given a square chessboard of N x N size, the position of the Knight and the position of a target are given. Write a program to find our the minimum steps a Knight will take to reach the target position.

STL in C++

Assignment-11: priority_queue

1. Define a class Student with roll no, name and course name as instance members. Provide needful member functions. Create a priority_queue on the basis of Student roll number.
2. In question 1, create a priority_queue on the basis of Student name.
3. Define a class Batsman with name, runs, hundreds and fifties as member variables. Provide needful member functions. Using priority_queue decide the order of batsman will be playing in a match on the basis of runs made by the batsman. Higher run maker will play first.
4. In question 3, create a priority queue on the basis of number of centuries.
5. In question 3, create a priority queue on the basis of number of fifties.

STL in C++

Assignment-12: string

1. Define a function to count vowels in a given string.
2. Define a function to check if a given string is a palindrome or not.
3. Define a function to search a given pattern in a given string.
4. Define a function to capitalise a given string. Make first letter of each word capital.
5. Define a function to reverse a string.

STL in C++

Assignment-13: string

1. Define a function to count words in a given string.
2. Define a function trim a string.
3. Define a function to remove extra spaces from a given string.
4. Define a function to split a given string into words.
5. Define a function to reverse a string word wise.

STL in C++

Assignment-14: set

1. Define a class Score with runs and wickets as member variables. Provide constructor to initialise Score object.
2. In question 1, define a functor to compare two Score objects by runs
3. In question 1, define a functor to compare two Score objects by wickets
4. In question 1, display scores in order of runs
5. In question 1, display scores in order of wickets

STL in C++

Assignment-15: map

1. Create a map object to store emp_id of int type and emp_name of string type.
2. In question 1, store 5 employee data in the map object.
3. In question 1, insert one more employee data using insert method of map.
4. In question 1, write a function to display all the employee data stored in map using explicit iterator
5. In question 1, write a method to find an employee in the map with the specified name. Function should return a pair of emp_id and bool value. Bool value is true if name found otherwise false.