Lab task 4

#include <iostream>

#include <vector>

#include <stdexcept> // For std::runtime\_error

Using namespace std;

Class Stack {

Private:

Vector<char> elements; // Dynamic array to hold stack elements

Public:

// Constructor

Stack() {}

// Destructor

~Stack() {}

// Push an element onto the stack

Void push(const char dataItem) {

Elements.push\_back(dataItem);

}

// Pop an element from the stack

Char pop() {

If (isEmpty()) {

Throw runtime\_error(“Stack is empty. Cannot pop.”);

}

Char topElement = elements.back();

Elements.pop\_back();

Return topElement;

}

// Peek at the top element of the stack

Char peek() {

If (isEmpty()) {

Throw runtime\_error(“Stack is empty. Cannot peek.”);

}

Return elements.back();

}

// Clear the stack

Void clear() {

Elements.clear();

}

// Check if the stack is empty

Bool isEmpty() {

Return elements.empty();

}

};

Int main() {

Stack stack;

String input;

// Get input from user

Cout << “Enter a string to reverse: “;

Getline(cin, input);

// Push all characters of the string onto the stack

For (char ch : input) {

Stack.push(ch);

}

// Pop all characters from the stack to get the reversed string

String reversed;

While (!stack.isEmpty()) {

Reversed += stack.pop();

}

Cout << “Reversed string: “ << reversed << endl;

Return 0;

}