18-04-2023

**DAY 4 Assignment QUESTIONS.**

1. Write a program to reverse a word using loop?

Sample Input:

String: TEMPLE

Sample Output:

Reverse String: ELPMET

Test cases:

1. SIGN UP
2. AT-LEAST
3. 1245
4. !@#$%
5. 145\*999=144855

#include <iostream>

#include <string>

using namespace std;

string reverseWord(string word) {

int start = 0;

int end = word.length() - 1;

while (start < end) {

char temp = word[start];

word[start] = word[end];

word[end] = temp;

start++;

end--;

}

return word;

}

int main() {

string testCases[] = {"SIGN UP", "AT-LEAST", "1245", "!@#$%", "145\*999=144855"};

for (int i = 0; i < sizeof(testCases) / sizeof(testCases[0]); i++) {

string word = testCases[i];

string reversedWord = reverseWord(word);

cout << "Test Case " << i + 1 << ":" << endl;

cout << "Original String: " << word << endl;

cout << "Reversed String: " << reversedWord << endl;

} return 0;

}

1. Write a program to print square star and rectangle dollar pattern?

#include <iostream>

#include <string>

using namespace std;

// Function to print square star pattern

void printSquareStarPattern(int size) {

cout << "Square Star Pattern:" << endl;

for (int i = 0; i < size; i++) {

for (int j = 0; j < size; j++) {

cout << "\* ";

}

cout << endl;

}

}

// Function to print rectangle dollar pattern

void printRectangleDollarPattern(int rows, int columns) {

cout << "Rectangle Dollar Pattern:" << endl;

for (int i = 0; i < rows; i++) {

for (int j = 0; j < columns; j++) {

cout << "$ ";

}

cout << endl;

}

}

int main() {

// Input for square star pattern

int squareSize;

cout << "Enter size for square star pattern: ";

cin >> squareSize;

// Input for rectangle dollar pattern

int rectangleRows, rectangleColumns;

cout << "Enter number of rows for rectangle dollar pattern: ";

cin >> rectangleRows;

cout << "Enter number of columns for rectangle dollar pattern: ";

cin >> rectangleColumns;

// Print square star pattern

printSquareStarPattern(squareSize);

// Print rectangle dollar pattern

printRectangleDollarPattern(rectangleRows, rectangleColumns);

return 0;

}

3. Write a program to count all the prime and composite numbers entered by the user.

Sample Input:

Enter the numbers

4

54

29

71

7

59

98

23

Sample Output:

Composite number:3

Prime number:5

Test cases:

1. 33, 41, 52, 61,73,90
2. TEN, FIFTY, SIXTY-ONE, SEVENTY-SEVEN, NINE
3. 45, 87, 09, 5.0 ,2.3, 0.4
4. -54, -76, -97, -23, -33, -98
5. 45, 73, 00, 50, 67, 44

#include <iostream>

#include <cmath>

using namespace std;

// Function to check if a number is prime

bool isPrime(int num) {

if (num <= 1)

return false;

for (int i = 2; i <= sqrt(num); i++) {

if (num % i == 0)

return false;

}

return true;

}

int main() {

int n;

cout << "Enter the number of elements: ";

cin >> n;

int num;

int countPrime = 0;

int countComposite = 0;

cout << "Enter " << n << " numbers: " << endl;

for (int i = 0; i < n; i++) {

cin >> num;

if (isPrime(num)) {

countPrime++;

} else {

countComposite++;

}

}

cout << "Number of Prime numbers: " << countPrime << endl;

cout << "Number of Composite numbers: " << countComposite << endl;

return 0;

}

4 Write a program to check the entered user name is valid or not. Get both the inputs from the user.

Sample Input:

Enter the user name: Saveetha@789

Reenter the user name: Saveetha@123

Sample Output:

User name is Invalid

#include <iostream>

#include <string>

using namespace std;

bool isValidUserName(const string& userName) {

// User name should not be empty

if (userName.empty()) {

return false;

}

// User name should not contain any whitespace

for (char c : userName) {

if (isspace(c)) {

return false;

}

}

// User name should start with a letter

if (!isalpha(userName[0])) {

return false;

}

// User name can only contain letters, digits, or underscores

for (char c : userName) {

if (!isalnum(c) && c != '\_') {

return false;

}

}

// User name should be 6 or more characters long

if (userName.length() < 6) {

return false;

}

return true;

}

int main() {

string userName;

cout << "Enter a user name: ";

cin >> userName;

if (isValidUserName(userName)) {

cout << "Valid user name!" << endl;

} else {

cout << "Invalid user name!" << endl;

}

return 0;

}