

Department of Computer Science & MIS

502105 Programming in a Selected Language

Second Semester 2022-2023

The Course Assignment

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1. Write a program in C++ to calculate the sum of all even numbers between 1 and 100, inclusive. (3 marks)

**Solution:**

#include <iostream>using namespace std;int main() { int sum = 0; for (int i = 2; i <= 100; i += 2) { sum += i; } cout << "Sum of all even numbers between 1 and 100: " << sum << endl; return 0;}

**GDB PLATFROM LINK:** [**https://onlinegdb.com/9OBRhLDeC**](https://onlinegdb.com/9OBRhLDeC)

1. Write a program in C++ to generate a Fibonacci sequence of a given length. (3 marks)

**Solution:**

#include <iostream>using namespace std;int main() { int n, a = 0, b = 1, c; cout << "Enter the number of terms: "; cin >> n; cout << "Fibonacci sequence of " << n << " terms:" << endl; for (int i = 1; i <= n; i++) { cout << a << " "; c = a + b; a = b; b = c; } return 0;}

**GDB PLATFROM LINK:** [**https://onlinegdb.com/OIXNhsZx9**](https://onlinegdb.com/OIXNhsZx9)

1. Write a C++ program to check whether a given number is prime or not. (3 marks)

**Solution:**

#include <iostream>using namespace std;bool isPrime(int num) { if (num <= 1) { return false; } for (int i = 2; i <= num / 2; i++) { if (num % i == 0) { return false; } } return true;}int main() { int num; cout << "Enter a number: "; cin >> num; if (isPrime(num)) { cout << num << " is a prime number." << endl; } else { cout << num << " is not a prime number." << endl; } return 0;}

**GDB PLATFROM LINK:** [**https://onlinegdb.com/9UX9YqaJD**](https://onlinegdb.com/9UX9YqaJD)

1. Write a C++ program that prompts the user to enter a base and an exponent, and then calculates and prints the result of the base raised to the power of the exponent using a for loop. (3 marks)

**Solution:**

#include <iostream>using namespace std;int main() { int base, exponent, result = 1; cout << "Enter the base: "; cin >> base; cout << "Enter the exponent: "; cin >> exponent; for (int i = 1; i <= exponent; i++) { result \*= base; } cout << base << " raised to the power of " << exponent << " is " << result << endl; return 0;}

**GDB PLATFROM LINK:** [**https://onlinegdb.com/jfBWlogUO**](https://onlinegdb.com/jfBWlogUO)

1. Write a program that calculates the simple interest and compound interest for a loan amount. Get the loan amount, interest, loan period from the user. (3 marks)

**Solution:**

#include <iostream>#include <cmath>using namespace std;int main() { double principal, rate, time, simple\_interest, compound\_interest; cout << "Enter the loan amount: "; cin >> principal; cout << "Enter the interest rate: "; cin >> rate; cout << "Enter the loan period in years: "; cin >> time; simple\_interest = principal \* rate \* time / 100; compound\_interest = principal \* pow(1 + rate / 100, time) - principal; cout << "Simple interest = " << simple\_interest << endl; cout << "Compound interest = " << compound\_interest << endl; return 0;}

**GDB PLATFROM LINK:** [**https://onlinegdb.com/TcVsidhcT9**](https://onlinegdb.com/TcVsidhcT9)