**Home Task 4**

**Fundamentals of Programming**

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//Task 1

#include <iostream>

using namespace std;

//This program prints all numbers from 1 to 150 that are not multiples of 10 by using while loop and if statements

int main()

{

    // Integer Variable is defined and initialised to value of 1

    int num;

    num=1;

    // Loop is used to iterate the following commands multiple times so that multiple numbers are printed

    while (num<=150)

   {

       // If/else is used to check whether number is multiple of 10

       if (num%10!=0)

       {

           cout<<num<<endl;

           num++;

          continue;

       }

       num++;

    }

    return 0;

 }

**Output 1:**

A black rectangle with white text

Description automatically generatedA black screen with white text

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//Task 2

#include <iostream>

using namespace std;

//This program finds the sum of all digits in a number

int main()

{

    // Two variables are defined for the number and sum of digits, user is asked to input value for number

    int num1;

    int sum;

    sum=0;

    cout<<"Enter any number: "<<endl;

    cin>>num1;

    // While loop adds each digit of the number to sum variable by taking remainder of number after dividing by 10

    while(num1>=1)

    {

        sum+=(num1%10);

        num1=num1/10;

    }

    cout<<"Sum of all digits is "<< sum <<endl;

    return 0;

}

**Output 2:**

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//Task 3

# include <iostream>

# include <cmath>

using namespace std;

//This program checks if a number is a prime number or not using for loop and if statements

int main()

{

    int i;

    int num2;

    cout<<"Enter any number: "<<endl;

    cin>>num2;

    // Square root is taken as there is no need to check factors after square root as they are already checked (e.g.: 2\*20 = 20\*2)

    int n=sqrt(num2);

    bool prime=true;

    //Used an if statement to check whether number is 1 (hence prime) otherwise if it’s not 1 then for loop is used to check if it’s a prime number

    if (num2==1)

    {

        prime=true;

    }

    else

    {

// For loop and if statement checks whether number is divisible by any of the numbers below its square root(hence not prime)

        for (i = 2; i<=n; i++)

    {

        if(num2%i==0)

        {

            prime=false;

            break;

        }

    }

    }

// Final if statement is used to output number is prime or composite depending upon "prime" being true or false

    if (prime==true)

    {

        cout<<"This is a prime number"<<endl;

    }

    else if (prime==false)

    {

        cout<<"This is a composite number"<<endl;

    }

    return 0;

 }

**Output 3:**

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