National University of Sciences and Technology (NUST)

Department of Mechanical Engineering (SMME)

Fundamentals of Programming (FOP)

Home Tasks

Lab Manual 5

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Home Task-1

```cpp
#include<iostream>
using namespace std;
int main() {
    int num1,num2,lcm,r1,r2,x,y;
    cout<<"Enter first integer: "<<endl;
    cin>>num1;
    cout<<"Enter second integer: "<<endl;
    cin>>num2;
    if(num1<num2){
        lcm=num2;
        y=num2;
        x=num1;
    }
    else{
        lcm=num1;
        x=num2;
        y=num1;
    }
    while(1){
        r1=lcm%num1;
        r2=lcm%num2;
        if(r1==0 && r2==0){
            break;
        }
        else{
            lcm++;
        }
    }
    cout<<"LCM of "<<x<<" and "<<y<<" using HCF is = "<<lcm;
    return 0;
}
```

```
Enter first integer:
12
Enter second integer:
67
LCM of 12 and 67 using HCF is = 804
--------------------------------
```

Home Task-2

```cpp
#include<iostream>
using namespace std;

int main() {
    double num,d,a,sum;
    cout<<"Enter number of terms in arithmetic progression: "<<endl;
    cin>>num;
    cout<<"Enter common difference: "<<endl;
    cin>>d;
    cout<<"Enter the first term of the series: "<<endl;
    cin>>a;
    sum=num*((2*a)+((num-1)*d))/2;
    cout<<"The sum of terms in the arithmetic progression series is: "<<sum;
    return 0;
}
```

```
Enter number of terms in arithmetic progression:
4
Enter common difference:
2
Enter the first term of the series:
1
The sum of terms in the arithmetic progression series is: 16
------------------------------
```

Home Task-3

```cpp
#include<iostream>
using namespace std;

int main() {
    int x;
    for(x=0 ; x<9 ; x++)
    {
        if(x==0||x==8){
            cout<<"    *    "<<endl;
        }
        else if(x==1||x==7){
            cout<<"   ***   "<<endl;
        }
        else if(x==2||x==6){
            cout<<"  *****  "<<endl;
        }
        else if(x==3||x==5){
            cout<<" ******* "<<endl;
        }
        else{
            cout<<" *********"<<endl;
        }
    }
    cout<<endl;
    cout<<"  Congrats";
    return 0;
}
```

```
      *
     ***
    *****
   *******
  *********
   *******
    *****
     ***
      *

  Congrats
```

Home Taks-4

```cpp
#include <iostream>
using namespace std;

int main() {
  int decimal, binary, remainder, product;
  binary=0;
  product=1;
  cout<<"Enter a decimal number to convert to binary: ";
  cin >> decimal;
  while (decimal != 0) {
    remainder = decimal % 2;
    binary = binary + (remainder * product);
    decimal = decimal / 2;
    product *= 10;
  }
  cout << "The number in the binary form is: " << binary ;
  return 0;
}
```

```
Enter a decimal number to convert to binary: 234
The number in the binary form is: 11101010
```