NUST

School of Mechanical & Manufacturing Engineering

FOP Assignment: 5

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Section: A

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1. Write a program in C++ to find the LCM of any two numbers using HCF.

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

int main() {
  int num1, num2, hcf, lcm;
  cout << "Enter first numbers: "<<endl;
  cin>>num1;
  cout<<"Enter second number: "<<endl;
  cin >> num2;

  for (int i = 1; i <= num1 && i <= num2; i++) {
    if (num1 % i == 0 && num2 % i == 0) {
      hcf = i;
    }
  }

  lcm = (num1 * num2) / hcf;
  cout << "The LCM of the two numbers is: " << lcm << endl;

  return 0;
}
```

```
C:\Users\DELL\Documents\ht1.5.exe
Enter first numbers:
4
Enter second number:
9
The LCM of the two numbers is: 36

--------------------------------
Process exited after 7.549 seconds with return value 0
Press any key to continue . . .
```

2. Write a program in C++ to find out the sum of an Arithmetic progression series.

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

int main() {
  int first, last, diff, sum;

  cout<<"Enter the first term of the AP series: ";
  cin>>first;
  cout<<"Enter the last term of the AP series: ";
  cin>>last;
  cout<<"Enter the common difference of the AP series: ";
  cin>>diff;
  sum = (first + last) / 2 * (last - first + diff);
  cout<<"The sum of the AP series is: "<<sum<<endl;

  return 0;
}
```

```
C:\Users\DELL\Documents\ht2.5.exe
Enter the first term of the AP series: 1
Enter the last term of the AP series: 5
Enter the common difference of the AP series: 1
The sum of the AP series is: 15

--------------------------------
Process exited after 3.351 seconds with return value 0
Press any key to continue . . .
```

3. Write a program in C++ to create a diamond.

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

int main() {
  int rows;
  cout << "Enter the number of rows in the diamond: ";
  cin >> rows;

  for (int i = 1; i <= rows; i++) {
    for (int j = 1; j <= rows - i; j++) {
      cout << " ";
    }
    for (int j = 1; j <= 2 * i - 1; j++) {
      cout << "*";
    }
    cout << endl;
  }
  for (int i = rows - 1; i >= 1; i--) {
    for (int j = 1; j <= rows - i; j++) {
      cout << " ";
    }
    for (int j = 1; j <= 2 * i - 1; j++) {
      cout << "*";
    }
    cout << endl;
  }

  return 0;
}
```

```
C:\Users\DELL\Documents\Untitled3.exe
Enter the number of rows in the diamond: 7
      *
     ***
    *****
   *******
  *********
 ***********
*************
 ***********
  *********
   *******
    *****
     ***
      *


--------------------------------
Process exited after 4.106 seconds with return value 0
Press any key to continue . . .
```

4. Write a program in C++ to convert a decimal to a binary number.

```cpp
#include <iostream>
using namespace std;
int main() {
    int decimalNumber;
    cout << "Enter a decimal Number=";
    cin >> decimalNumber;
    int binaryNumber[6] = {0,0,0,0,0,0};
    int i=0;
    while(decimalNumber > 0) {
        int temp = decimalNumber%2;
        binaryNumber[i]= temp;
        decimalNumber/=2;
        i++;
    }
    cout << "The binary Equilant is:";
    for(int i=5;i>=0;i--) {
        cout << binaryNumber[i];
    }
    return 0;
}
```