



NUST

**School of Mechanical &
Manufacturing Engineering**

FOP Assignment: 5

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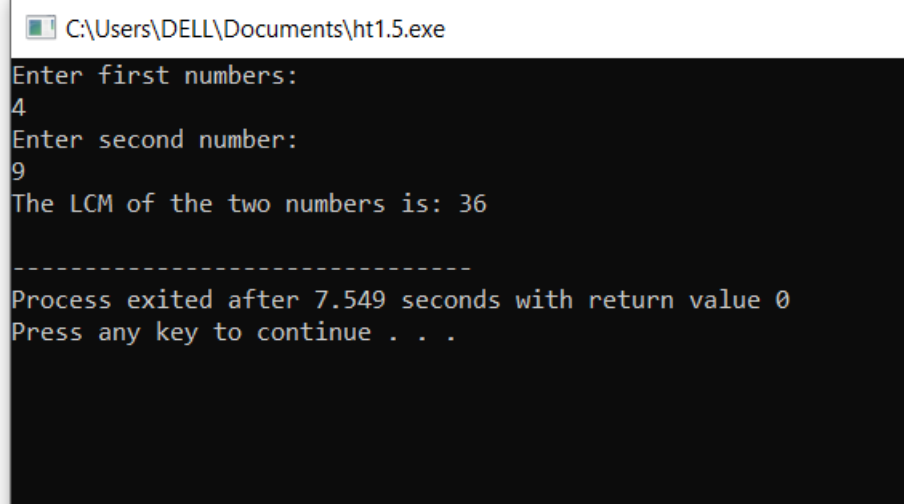
Section: A

Course Instructor: Dr. Jawad

Lab instructor: Sir. Affan

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

```
1  #include <iostream>
2  using namespace std;
3
4  int main() {
5      int num1, num2, hcf, lcm;
6      cout << "Enter first numbers: "<<endl;
7      cin>>num1;
8      cout<<"Enter second number: "<<endl;
9      cin >> num2;
10
11     for (int i = 1; i <= num1 && i <= num2; i++) {
12         if (num1 % i == 0 && num2 % i == 0) {
13             hcf = i;
14         }
15     }
16
17     lcm = (num1 * num2) / hcf;
18     cout << "The LCM of the two numbers is: " << lcm << endl;
19
20     return 0;
21 }
```

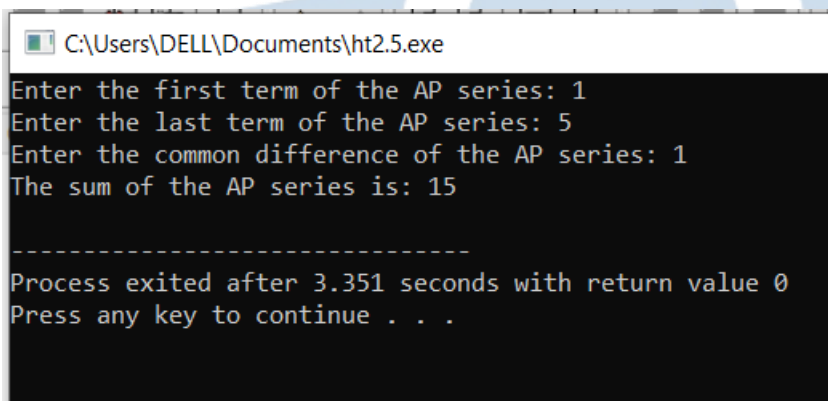


```
C:\Users\DELL\Documents\ht1.5.exe
Enter first numbers:
4
Enter second number:
9
The LCM of the two numbers is: 36

-----
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.

```
1  #include <iostream>
2  using namespace std;
3
4  int main() {
5      int first, last, diff, sum;
6
7      cout<<"Enter the first term of the AP series: ";
8      cin>>first;
9      cout<<"Enter the last term of the AP series: ";
10     cin>>last;
11     cout<<"Enter the common difference of the AP series: ";
12     cin>>diff;
13     sum = (first + last) / 2 * (last - first + diff);
14     cout<<"The sum of the AP series is: "<<sum<<endl;
15
16     return 0;
17 }
```



```
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.

```

1      #include <iostream>
2      using namespace std;
3
4      int main() {
5          int rows;
6          cout << "Enter the number of rows in the\n";
7          cin >> rows;
8
9          for (int i = 1; i <= rows; i++) {
10             for (int j = 1; j <= rows - i; j++) {
11                 cout << " ";
12             }
13             for (int j = 1; j <= 2 * i - 1; j++) {
14                 cout << "a";
15             }
16             cout << endl;
17         }
18         for (int i = rows - 1; i >= 1; i--) {
19             for (int j = 1; j <= rows - i; j++) {
20                 cout << " ";
21             }
22             for (int j = 1; j <= 2 * i - 1; j++) {
23                 cout << "a";
24             }
25             cout << endl;
26         }
27
28         return 0;
29     }
30

```

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

```
1  #include <iostream>
2  using namespace std;
3  int main() {
4      int decimalNumber;
5      cout << "Enter a decimal Number=";
6      cin >> decimalNumber;
7      int binaryNumber[6] = {0,0,0,0,0,0};
8      int i=0;
9      while(decimalNumber > 0) {
10         int temp = decimalNumber%2;
11         binaryNumber[i]= temp;
12         decimalNumber/=2;
13         i++;
14     }
15     cout << "The binary Equilant is:";
16     for(int i=5;i>=0;i--) {
17         cout << binaryNumber[i];
18     }
19     return 0;
20 }
```

```
C:\Users\DELL\Documents\ht4.5.exe
Enter a decimal Number=31
The binary Equilant is:011111
-----
Process exited after 1.827 seconds with return value 0
Press any key to continue . . .
```