Lab Exercise 2: Revist

1.WAP to generate a Fibonacci series up to n terms.

```
/*****************************************************************
//This program is developed by Aman Singh Rawat (221B056)
/*****************************************************************
#include <iostream>
using namespace std;

void fib (int n){
        int num1 = 0;
        int num2 = 1;
        cout << num1 << " " << num2<< " ";
        for(int i =0 ; i< n-2; i++){
        int tmp = num2;
        num2 = num1+num2;
        num1 = tmp;
        cout << num2 << " ";
        }
}

int main(){
        cout << "Enter a number: ";
        int num;
        cin >> num;
        fib(num);
        return 0;
}
```

2.WAP to find out series sum of 1^2 + 2^2 + …. + n^2

```
/*****************************************************************
//This program is developed by Aman Singh Rawat (221B056)
/*****************************************************************
#include <iostream>
using namespace std;
```

```
int find_sum(int n){
	int sum  = 0;
	for(int i = 1; i<=n; i++){
		sum += (i*i);
	}
	return sum;
}

int main(){
	int num;
	cout << "Enter a number: ";
	cin >> num;
	cout << find_sum(num);
}
```

3.WAP to find out GCD of two numbers.

```
/*********************************************************************
//This program is developed by Aman Singh Rawat (221B056)
/*********************************************************************
#include <iostream>
using namespace std;

int gcd(int n1, int n2){
	int tmp;
	int s;
	if(n1 > n2)
		s = n2;
	else
		s = n1;
	int gcd = 0;
	for(int i = 1 ; i<=s; i++){
		if(n1 % i == 0 && n2 % i ==0){
			gcd = i;
		}
	}
	return gcd;
}

int main(){
```

```
	int num1, num2;
	cout << "Enter the two numbers: ";
	cin >> num1 >> num2;
	cout << gcd(num1, num2);
}
```

4.WAP to multiply two numbers using addition.

```
/*********************************************************************
//This program is developed by Aman Singh Rawat (221B056)
/*********************************************************************
#include <iostream>
using namespace std;

int product(int a , int b){
	int pro = 0 ;
	for(int i = 0; i<b; i++){
		pro += a;
	}
	return pro;
}

int main(){
	int num1, num2;
	cout << "Enter the two numbers: ";
	cin >> num1 >> num2;
	cout << product(num1, num2);
}
```

5.WAP to convert a binary number into decimal.

```
/*********************************************************************
//This program is developed by Aman Singh Rawat (221B056)
/*********************************************************************
#include <iostream>
using namespace std;

int convert(int a){
	int num = 0;
	int tmp;
```

```
	int pro;
	int count = 0;
	while(a != 0 ){
		tmp = a %10;
		a /= 10;
		if(tmp == 0)
			count++;
	else{
		pro = 1;
		for(int i = 0 ;i<count; i++)
			pro *= 2;
			num += pro;
			count++;
		}
	}
	return num;
}

int main(){
	int num1, num2;
	cout << "Enter the number: ";
	cin >> num1;
	cout << convert(num1);
}
```

6.WAP to convert a decimal into binary number.

```
/*********************************************************************
//This program is developed by Aman Singh Rawat (221B056)
/*********************************************************************
#include <iostream>
using namespace std;

int convert(int a){
	int tmp;
	int num = 0;
	int pro = 1;
	while(a!= 0){
		tmp = a%2;
		a /= 2;
```

```
            if(tmp == 0) pro *= 10;
            else{
                num += pro;
                pro *= 10;
            }

        }
        return num;
}

int main(){
        int num1, num2;
        cout << "Enter the number: ";
        cin >> num1;
        cout << convert(num1);
}
```

7.WAP to display lower triangular matrix of a given n by n size matrix entered by user.

```
/*********************************************************************
//This program is developed by Aman Singh Rawat (221B056)
/*********************************************************************
#include <iostream>
using namespace std;


int main(){
        int n;
        int arr[n][n];
        int count = 0;
        cout << "Enter the size: ";
        cin >> n;
        for(int i = 0; i<n; i++){
            cout << " Enter the row: " ;
            for(int j = 0; j<n ; j++){
                cin >> arr[i][j];
            }
        }
        count = 0;
        for(int i = 0; i<n; i++){
```

```
                for(int j = 0; j<count; j++){
                        cout << arr[i][j] << "  ";
                }
                cout << endl;
                count++;
        }
}
```

8.WAP to find out nCr factor of given numbers.

```
/******************************************************************************
//This program is developed by Aman Singh Rawat (221B056)
/******************************************************************************
#include <iostream>
using namespace std;

int find_fact(int n, int r){
        int t1 = 1, t2 = 1, t3 = 1;

        for(int i = 1 ; i < n; i++){
                t1 *= i;
        }
        for(int i = 1; i<r; i++){ t2 *= i;}
        for(int i=1; i<n-r; i++){t3 *= i;}

        return t1/(t3*t2);
}

int main(){
        cout << "Enter n and r: ";
        int n,r;
        cin >> n >> r;
        cout << "The factor is: " << find_fact(n,r) << endl;
}
```

9.WAP for finding the element which appears maximum number of times in the array.

```
/******************************************************************************
//This program is developed by Aman Singh Rawat (221B056)
/******************************************************************************
```

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

int  find_max(int arr[], int n){
	int maxcountnum;
	int maxcount = 0;
		for(int i = 0; i<n; i++){
			int count = 0;
			for(int j = 0; j<n; j++){
				if(arr[i] == arr[j]){
					count++;
				}
			}
			if(count > maxcount){
				maxcount = count;
				maxcountnum = arr[i];
			}
		}
	return maxcountnum;
}

int main(){
	int n = 12;
	int arr[]= {3,2,23,1,2,34,2,4,1,3,1,1};
	cout << find_max(arr, n);
}
```