

## Lab Assignment 3

### Yeeshukant Singh | 200002082

**Q1. Write a program in C++ to find whether an integer is even or odd.**

Ans:

```
#include<iostream>
using namespace std;
int main(){
    int num=0;
    cin>>num;
    if(num%2==0)
        cout<<"The Number is even\n";
    else
        cout<<"The Number is odd\n";
    return 0;
}
```

Output:

```
~/My-files $ ./a.out
3
The Number is odd
~/My-files $ ./a.out
46
The Number is even
```

**Q2. Write a program to find the largest of three numbers.**

Ans:

```
#include<iostream>
using namespace std;
int main(){
    int num1=0, num2=0, num3=0, max=0;
    cin>>num1>>num2>>num3;
    if(num1>num2 && num1>num3)
        max=num1;
    else if(num2>num1 && num2>num3)
        max=num2;
    else
        max=num3;
    cout<<"Largest number: "<<max<<"\n";
    return 0;
}
```

Output:

```
~/My-files $ ./a.out
1 1 1
Largest number: 1
```

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```
~/My-files $ ./a.out
1 2 2
Largest number: 2
~/My-files $ ./a.out
235 356 452
Largest number: 452
```

**Q3. Write a program in C++ to reverse a number and check whether it is a palindrome.**

Ans:

```
#include<iostream>
#include<string.h>
using namespace std;
int main(){
    string num;
    cin>>num;
    int flag=1;
    int l=num.length();
    for(int i=l-1;i>=0;i--){
        cout<<num[i];
        if(num[i]!=num[l-i-1])
            flag=0;
    }
    cout<<"\n";
    if(flag==1)
        cout<<"The number is palindrome\n";
    else
        cout<<"The number is not palindrome\n";
    return 0;
}
```

Output:

```
~/My-files $ ./a.out
12321
12321
The number is palindrome
~/My-files $ ./a.out
1221
1221
The number is palindrome
~/My-files $ ./a.out
12345
54321
The number is not palindrome
```

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**Q4. Write a program in C++ to convert a given decimal number to its equivalent binary.**

Ans:

```
#include<iostream>
#include<cmath>
using namespace std;
int main(){
    int num;
    cin>>num;
    if(num==0){
        cout<<"0\n";
        return 0;
    }
    int power=log(num)/log(2);
    power++;
    int bin[power];
    for(int i=power-1;i>=0;i--){
        bin[i]=num%2;
        num=num/2;
    }
    for(int i=0;i<power;i++){
        cout<<bin[i];
    }
    cout<<"\n";
    return 0;
}
```

Output:

```
~/My-files $ ./a.out
15
1111
~/My-files $ ./a.out
16
10000
~/My-files $ ./a.out
3654
111001000110
```

**Q5. Write a program to swap the contents of two variables without using a third variable.**

Ans:

```
#include<iostream>
using namespace std;
int main(){
    int a=0, b=0;
```

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```
cin>>a>>b;
a=a+b;
b=a-b;
a=a-b;
cout<<a<<" "<<b<<"\n";
return 0;
}
```

Output:

```
~/My-files $ ./a.out
345 36567
36567 345
~/My-files $ ./a.out
1 0
0 1
~/My-files $ ./a.out
435 642
642 435
```