National University of Science and technology

(NUST)

CS-114 - Fundamental of Programing

Lab Manual # 05

Lab Tasks

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TASK 1:

Convert the following while loop to a do-while loop

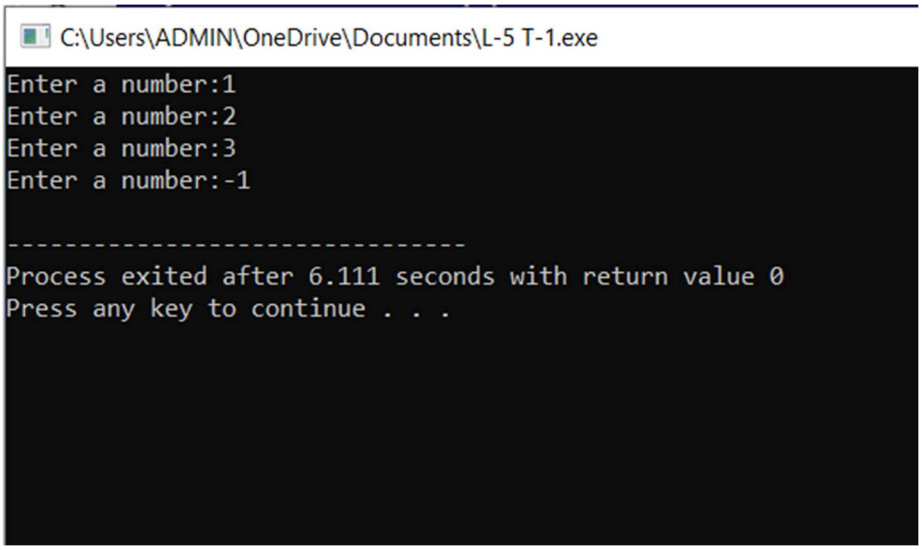
```
int x = 1;
 while (x > 0)
 {
cout << "enter a number: ";
 cin >> x;
 }
```

C++ Code:

```
#include <iostream>

using namespace std;

int main(){

int x=1;

do{

cout<<"Enter a number:";

cin>>x;

}while(x>0);
```

```
return 0;
}
```

Result:



TASK 2:

Use a do while loop to make a simple calculator for two numbers. Insert buttons for it to ask again and for termination.

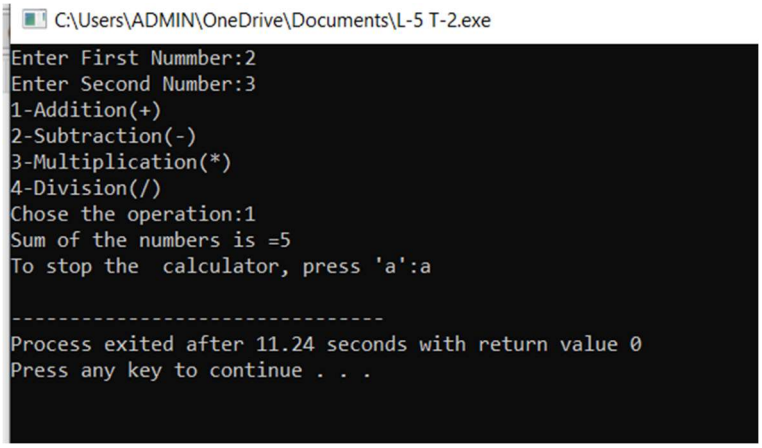
Code:

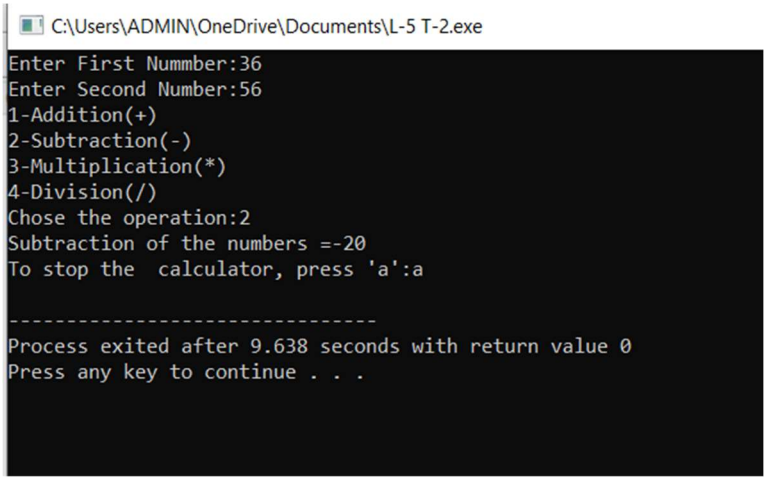
```
#include <iostream>
using namespace std;
int main(){
	char en;
	do{
		int x,o,y,sum,sub,mul,div,en;
	cout<<"Enter First Nummber:";
```

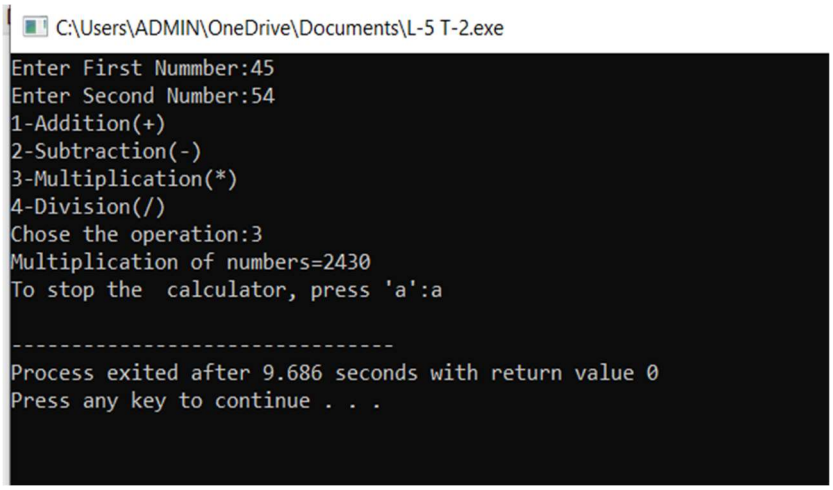
```
cin>>x;
cout<<"Enter Second Number:";
cin>>y;

        cout<<"1-Addition(+)"<<endl;
        cout<<"2-Subtraction(-)"<<endl;
        cout<<"3-Multiplication(*)"<<endl;
        cout<<"4-Division(/)"<<endl;
        cout<<"Chose the operation:";
        cin>>o;
switch(o){
                case 1:
        sum=x+y;
        cout<<"Sum of the numbers is ="<<sum<<endl;
        break;
        case 2:
                sub=x-y;
                cout<<"Subtraction of the numbers ="<<sub<<endl;
                break;
        case 3:
                mul=x*y;
        cout<<"Multiplication of numbers="<<mul<<endl;
        break;
        case 4:
                div=x/y;
                cout<<"division of numbers="<<div<<endl;
                break;
```

```
        }
        cout<<"To stop the  calculator, press 'a':";
        cin>>en;


        }while(en=='a');
        return 0;
}
```

Result:







TASK 3:

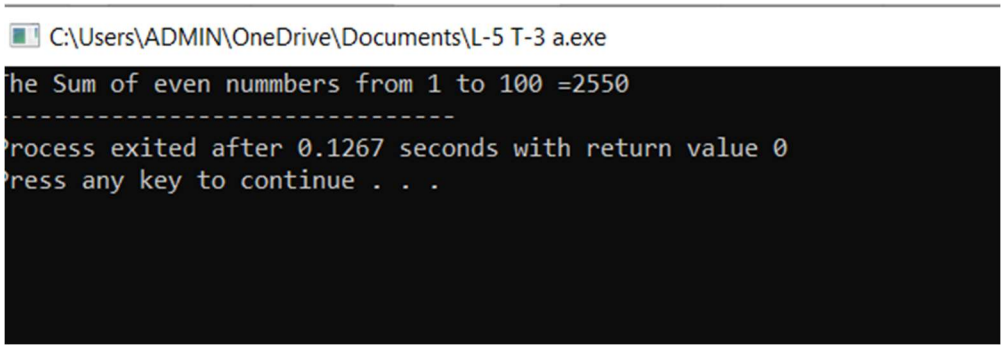
Write programs with while or do while loops that compute:

a. The sum of all even numbers between 2 and 100 (inclusive).

Code:

```
#include <iostream>

using namespace std;

int main(){

        int num1=2,num2=0;

        while(num1<101){

                num2+=num1;

                num1=num1+2;



        }

cout<<"The Sum of even nummbers from 1 to 100 ="<<num2;

        return 0;

}
```

Result:



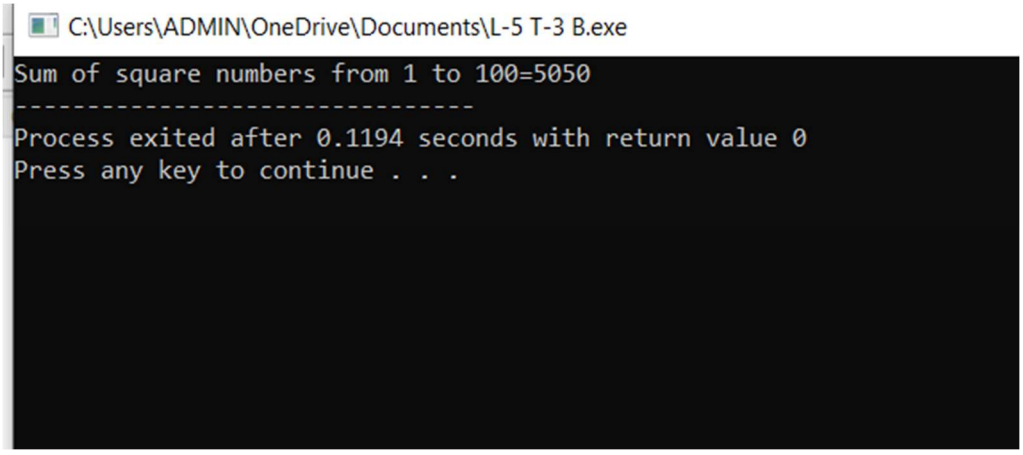
Part b

b. The sum of all squares between 1 and 100 (inclusive)

Code:

```
#include <iostream>

using namespace std;

int main(){

	int num1=1,num2=0;

	while(num1<101){

		num1*num1;

		num2+=num1;

		num1++;

	}

	cout<<"Sum of square numbers from 1 to 100="<<num2;

	return 0;

}
```

Result:



Task 4:

Write programs with while or do while loops that compute:

Part-A

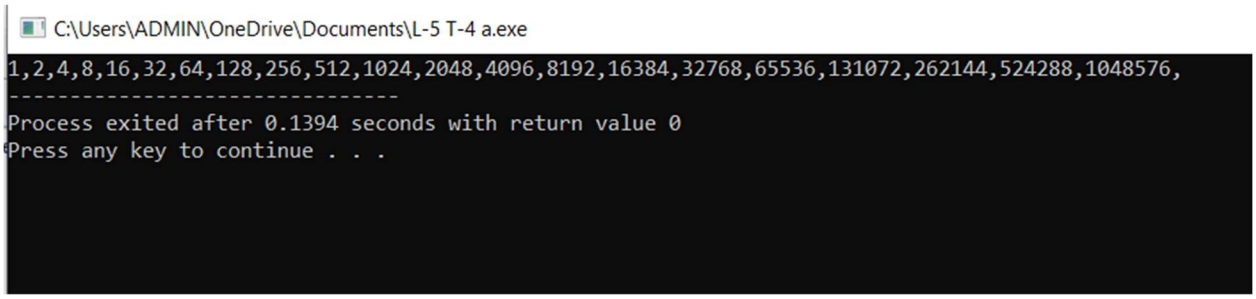
a. All powers of 2 from 20 up to 220

Code:

```
#include <iostream>
#include <math.h>
using namespace std;
int main(){
	int i=0,a;

	while(i<21){
		pow(2,i);
	a=pow(2,i);
	cout<<a<<",";
```

```
        i++;
        }

        return 0;
}
```

Result:

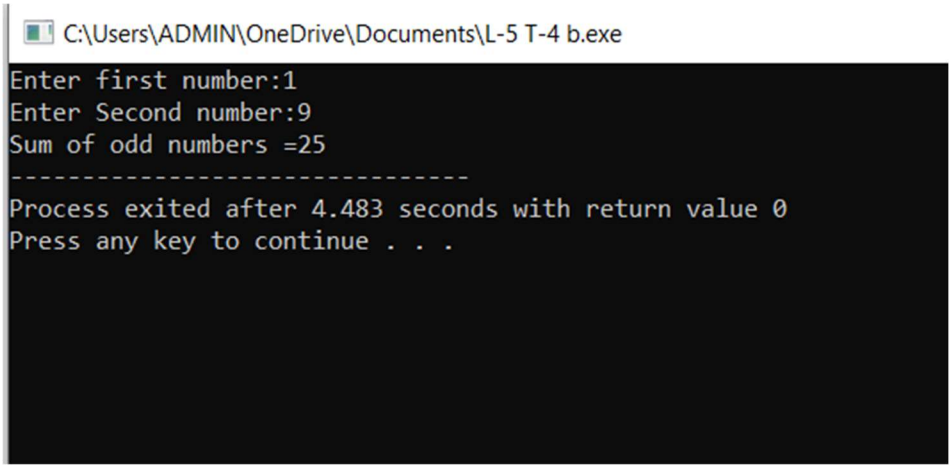


Part-b:

The sum of all odd numbers between a and b (inclusive), where a and b are inputs

Code:

```
#include <iostream>
#include <math.h>
using namespace std;
int main(){
        int a,b,x,sum,res;
        cout<<"Enter first number:";
        cin>>a;
        cout<<"Enter Second number:";
        cin>>b;
        x=a;
        while(x>=a&&x<=b){
                if(x%2!=0){
```

```
                    sum+=x;
                }

        x++;

        }
        res=sum-1;
        cout<<"Sum of odd numbers ="<<res;
        return 0;
}
```

Result: