

TOSEEF HAIDER 457249

LAB MANUAL 5:

TASK 1:

Convert the following while loop to a do-while loop:

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

CODE:

```
#include <iostream>
using namespace std;
int main (){
    //converting while loop to do while loop
    int x=1;
    do{
        cout <<"Enter a number:";
        cin>>x;
    }while(x>0);
    return 0;
}
```

RESULT:

```
Enter a number:4
Enter a number:6
Enter a number:77
Enter a number:0

-----
Process exited after 8.211 seconds with return value 0
Press any key to continue . . .
```

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>
#include <math.h>
using namespace std;
int main (){
//use do while for making calculator
char rep;
do {
char op;
double num1,num2,result =0;
cout <<"Enter value of num1 :"<<endl;
cin >>num1;
cout <<"Enter value of num2 :"<<endl;
cin >>num2;
cout<<"Enter opertion(+,-,*,/,%) :"<<endl;
cin >>op;
switch(op){
case '+':
result = num1 + num2;
break;
```

```

        case '-':
result = num1 - num2;
break;
        case '*':
result = num1 * num2;
break;
        case '/':
result = num1 / num2;
break;
        case '%':
result = fmod (num1,num2);
break;
    }
    cout <<"result = "<<result<<endl; //output
    cin >>rep;
}while(rep=='2'); //run again only by pressing 2
return 0;
}

```

RESULT:

```

Enter value of num1 :
78
Enter value of num2 :
13
Enter operation(+,-,*,/,%) :
/
result = 6
2
Enter value of num1 :
45
Enter value of num2 :
0.112
Enter operation(+,-,*,/,%) :
*
result = 5.04
1

-----
Process exited after 96.56 seconds with return value 0
Press any key to continue . . .

```

TASK 3.a:

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 (){

//code to calculate sum of all even numbers from 2 and 100

int sum = 0;

int x=1;

while(x<=100){

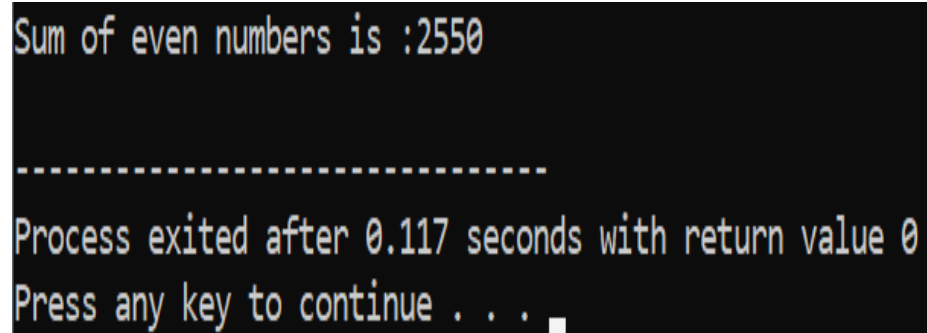
if(x%2==0)

```

```
sum = sum +x; //adding all values
x=x+1;
}

cout <<"Sum of even numbers is :"<<sum<<endl; //output
return 0;
}
```

RESULT:



```
Sum of even numbers is :2550
-----
Process exited after 0.117 seconds with return value 0
Press any key to continue . . . █
```

TASK 3.b:

Write programs with while or do while loops that compute:

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

CODE:

```
#include <iostream>
using namespace std;
int main (){
//sum of all squares between 1 and 100
    int sum = 0;
    int x=1;
    while(x<=100){
        int sq = x*x;//for getting square of number
```

```

sum = sum +sq;

x=x+1;

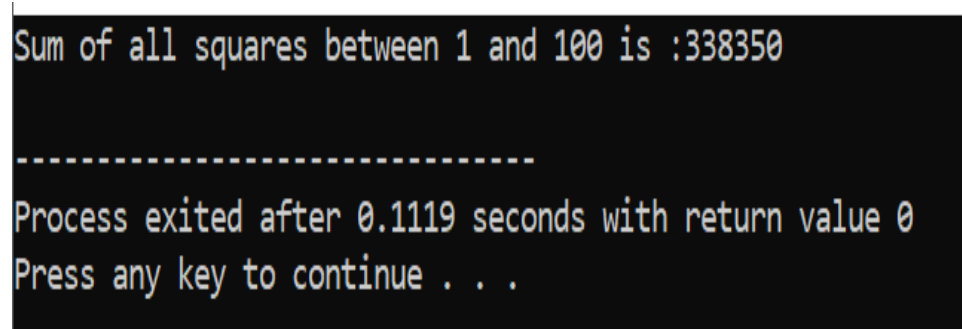
}

cout <<"Sum of all squares between 1 and 100 is :"<<sum<<endl;//result
return 0;

}

```

RESULT:



```

Sum of all squares between 1 and 100 is :338350
-----
Process exited after 0.1119 seconds with return value 0
Press any key to continue . . .

```

TASK 4.a:

Write programs with while or do while loops that compute:

a. All powers of 2 from 2_0 up to 2_{20} .

CODE:

```

#include <iostream>

#include <math.h>

using namespace std;

int main (){

//calculating all powers of 2 from 0 to 20

int x=2,result = 0;

int y=0; //power start from 0

while(y<=20){

```

```

result = pow (x,y);

y++;

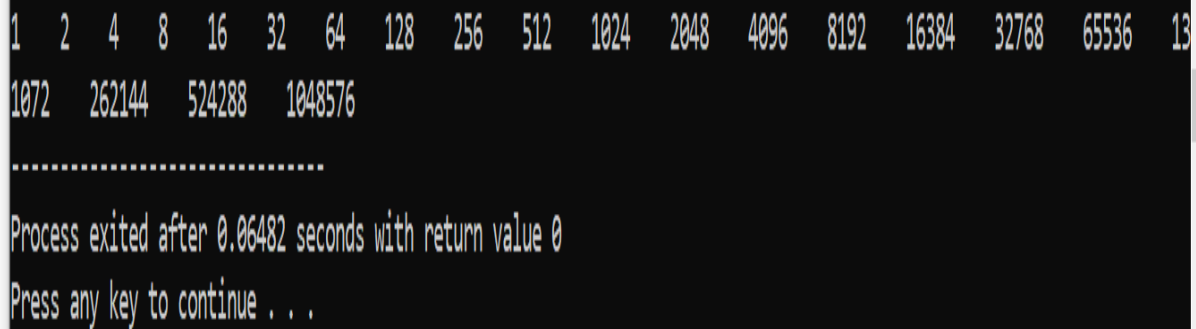
cout <<result<<endl; //output
}

return 0;

}

```

RESULT:



```

1  2  4  8  16  32  64  128  256  512  1024  2048  4096  8192  16384  32768  65536  131072
-----
Process exited after 0.06482 seconds with return value 0
Press any key to continue . . .

```

TASK 4.b:

Write programs with while or do while loops that compute:

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

CODE:

```

#include <iostream>

using namespace std;

int main (){

//calculating all odd numbers between a and b

int a,b;//declaration

cout<<"Enter value of a :"<<endl;

cin >>a;

```

```

cout<<"Enter value of b :"<<endl;

cin >>b;

int sum = 0;

int x=a;

if(a<b){ while(x<b){
if(x%2==1)

sum = sum +x;//adding all values

x=x+1;

}

} else {

while(x>b){

if(b%2==1)

sum = sum +b;//adding all values

b=b+1;

}

}

cout <<"Sum of odd numbers between a and b is :"<<sum<<endl; //result

return 0;

}

```

RESULT:

Enter value of a :

0

Enter value of b :

102

Sum of odd numbers between a and b is :2601

Process exited after 6.51 seconds with return value 0

Press any key to continue . . .

END