

Course: Fundamentals of programming

Name: Muhammad Dawood Saeed

CMS: 465231

Submitted to: Sir Affan

TASK: LAB TASK MANUAL 5

Q1

```
//Q1) Converting the while statement to do-while.  
  
#include <iostream>  
using namespace std;  
  
int main() {  
    int x;  
    do {  
        cout<<"Enter a number:";  
        cin>>x;  
    } while(x>0);  
  
    cout << "Number can not be less than or equal to zero" << endl;  
    return 0;  
}
```

Q2

```

int main() {
    char choice;

    do {
        double num1, num2, result;
        char operation;

        cout << "Enter the first number: ";
        cin >> num1;

        cout << "Enter the operation (+, -, *, /): ";
        cin >> operation;

        cout << "Enter the second number: ";
        cin >> num2;

        if (operation == '+') {
            result = num1 + num2;
        } else if (operation == '-') {
            result = num1 - num2;
        } else if (operation == '*') {
            result = num1 * num2;
        } else if (operation == '/') {
            if (num2 != 0) {
                result = num1 / num2;
            } else {
                cout << "Error: Division by zero" << endl;
                continue;
            }
        } else {
            cout << "Invalid operation" << endl;
            continue;
        }

        cout << "Result: " << result << endl;

        cout << "Do you want to perform another calculation? (y/n): ";
        cin >> choice;
    } while (choice == 'y' || choice == 'Y');

    return 0;
}

```

ANS 2

```

C:\Users\Dell\Desktop\hi\LA
Enter the first number: 3
Enter the operation (+, -, *, /): /
Enter the second number: 5
Result: 0.6
Do you want to perform another calculation? (y/n): y
Enter the first number: 4
Enter the operation (+, -, *, /): *
Enter the second number: 4
Result: 16
Do you want to perform another calculation? (y/n): n

Process returned 0 (0x0)   execution time : 20.513 s
Press any key to continue.

```

Q3

```

//Q3) Write programs with while or do while loops that compute: a) The sum of all even numbers between 2 and 100 (inclusive), b) The sum of all squares between 1 and 100 (inclusive).
//a)

#include <iostream>
using namespace std;

int main() {
    int sum = 0;
    int number = 2;

    while (number <= 100) {
        sum += number;
        number += 2;
    }

    cout << "The sum of even numbers between 2 and 100 is: " << sum << endl;

    return 0;
}

//b)
#include <iostream>
#include <cmath>
using namespace std;

int main() {
    int sum = 0;
    int number = 1;

    do {
        sum += pow(number, 2); // Calculate the square using pow function
        number++;
    } while (number <= 100);

    cout << "The sum of squares between 1 and 100 is: " << sum << endl;

    return 0;
}

```

ANS3

```

C:\Users\DeII\Desktop\hi\LA
The sum of even numbers between 2 and 100 is: 2550
Process returned 0 (0x0) execution time : 0.037 s
Press any key to continue.

```

```

C:\Users\DeII\Desktop\hi\LA
The sum of squares between 1 and 100 is: 338350
Process returned 0 (0x0) execution time : 0.055 s
Press any key to continue.

```

Q4

```

//Q4) Write programs with while or do while loops that compute:a) All powers of 2 from 20(0) up to 220(20), b)The sum of all odd numbers between a and b (inclusive), where a and b are inputs.

//a)

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

int main(){
    int x=0, y=0, ans;
    while (y<=20){
        ans= pow(x,y);
        y++;

        cout<<ans<<" ";

        return 0;
    }

//b)

#include <iostream>
using namespace std;

int main() {
    int x, y, sum = 0;
    cout << "Enter two integers" << endl;
    cin >> x >> y;
    int n = x;

    do {
        if (n % 2 != 0)
            sum += n;
        n++; //
    } while (n <= y);

    cout << "The sum of odd numbers between " << x << " and " << y << " is: " << sum << endl;

    return 0;
}

```

ANS 4

```

1 2 4 8 16 32 64 128 256 512 1024 2048 4096 8192 16384 32768 65536 131072 262144 524288 1048576
Process returned 0 (0x0)   execution time : 0.060 s
Press any key to continue.

```

```

Enter two integers
333
83742
The sum of odd numbers between 333 and 83742 is: 1753153085

Process returned 0 (0x0)   execution time : 8.091 s
Press any key to continue.

```