

Exercise 1:

I) i=0

$0 \leq 5$

$$\text{sum} = 0 + ((2+0)*(2+0)) = 4$$

i=0+1

II) i=1

$1 \leq 5$

$$\text{sum} = 4 + ((2+1)*(2+1)) = 13$$

i=1+1 = 2

III) i=2

$2 \leq 5$

$$\text{sum} = 13 + ((2+2)*(2+2)) = 29$$

i=2+1=3

IV) i=3

$3 \leq 5$

$$\text{sum} = 29 + ((2+3)*(2+3)) = 54$$

i= 3+1= 4

V) i=4

$4 \leq 5$

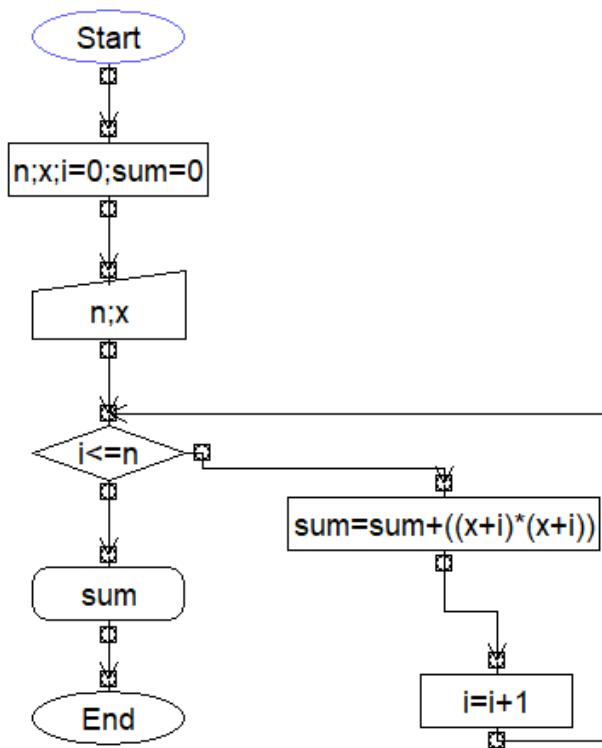
$$\text{sum} = 54 + ((2+4)*(2+4)) = 90$$

i=4+1 = 5

VI) i=5

$5 \leq 5$

$$\text{sum} = 90 + ((2+5)*(2+5)) = 139$$



Exercise 2

The screenshot shows a code editor window with the following details:

- Title Bar:** The title bar displays "C main".
- File Path:** The path "hw2 > hw2 > c main > No Selection" is shown.
- Code Content:** The code is a C program named "main.c". It includes the standard input-output library with `#include<stdio.h>`. The program declares two integer variables, `x` and `y`, both initialized to 1. It then checks if `x++` equals `y++`. Both variables are incremented by 1. If they were equal, `x` would be 2 and `y` would be 2. The program then prints the values of `x` and `y` using `printf("%d %d", x, y);`. If the condition was false, it would print the initial values of 1 and 1. Finally, the program returns 0.

```
1 #include<stdio.h>
2 int main()
3 {
4     int x = 1, y = 1;
5     //declare x & y as equal to 1
6     if(x++ == y++)
7         //is x equal to y ?
8         //increment by 1
9         //incremented : x=2 & y=2
10    printf("%d %d", x--, y--);
11    //print x=2 and y=2
12 else
13    printf("%d %d", x, y);
14    //if not print values of x & y : (x=1 & y=1)
15 return 0;
16 //end
17
18 }
19
```

Exercise 3 :

$x=2, n=3$

I) $2 \leq 2$

$1 \leq 3+1$

$1 \leq 4$

$\text{sum} = 0 + (1+2(2))^2$

$\text{sum} = 25$

$j = 1+1 = 2$

II) $2 \leq 4$

$\text{sum} = 25 + (2+2(2))^2$

$\text{sum} = 61$

$j = 2+1 = 3$

III) $3 \leq 4$

$\text{sum} = 61 + (3+2(2))^2$

$\text{sum} = 110$

$j = 3+1 = 4$

IV) $4 \leq 4$

$\text{sum} = 110 + (4+2(2))^2$

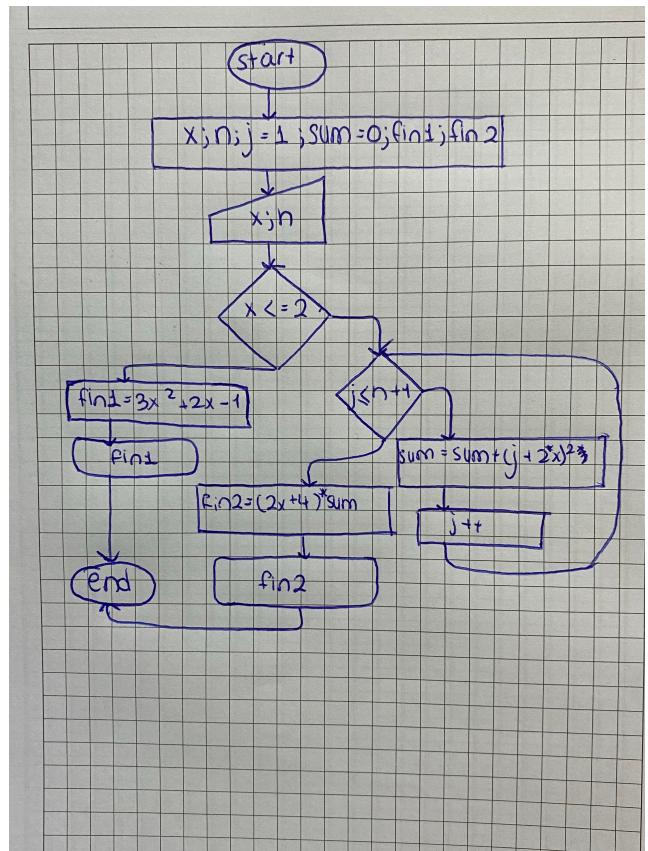
$\text{sum} = 174$

$j = 4+1 = 5$

V) $5 \leq 4$

$\text{fin2} = (2(2)+4) * (174)$

$\text{fin2} = 1392$



Exercise 4:

```

1 #include <stdio.h>
2 int main ()
3 {
4     int x;
5     scanf ("%d", &x);
6     if (x%2==0 && x%3==0)
7     {
8         printf ("The given number is a multiple of both 2 and 3");
9     }
10    if (x%2==0 && x%3!=0)
11    {
12        printf ("The given number is a multiple of 2 , but not a multiple
13    }
14    if (x%2!=0 && x%3==0)
15    {
16        printf ("The given number is a multiple of 3 , but not a multiple
17    }
18    if (x%2!=0 && x%3!=0)
19    {
20        printf ("The given number is not a multiple of 2 nor 3");
21    }
22
23 }
24
25| The given number is not a multiple of 2 nor 3Program ended with exit code: 0

```

1) $x=21$
 $21\%2=0$
 $21\%3=0$
 False && False
 FALSE

2) $21\%2=0$
 $21\%3!=0$
 False && True
 FALSE

3) $21\%2!=0$
 $21\%3=0$
 True && False
 FALSE

"The number isn't a multiple of neither 2 nor 3 "

Exercise 5:

I) $n=3$

$\max=3$

$\min=3$

$3 \neq 0$

$n0=5$

$5 > 3$

II)

$n0=-2$

$-2 > 5$ (false)

$-2 < 5$

$\min=-2$

III) $n0=107$

$107 > 3$

$\max=107$

IV) $n0=81$

$81 > 107$ (false)

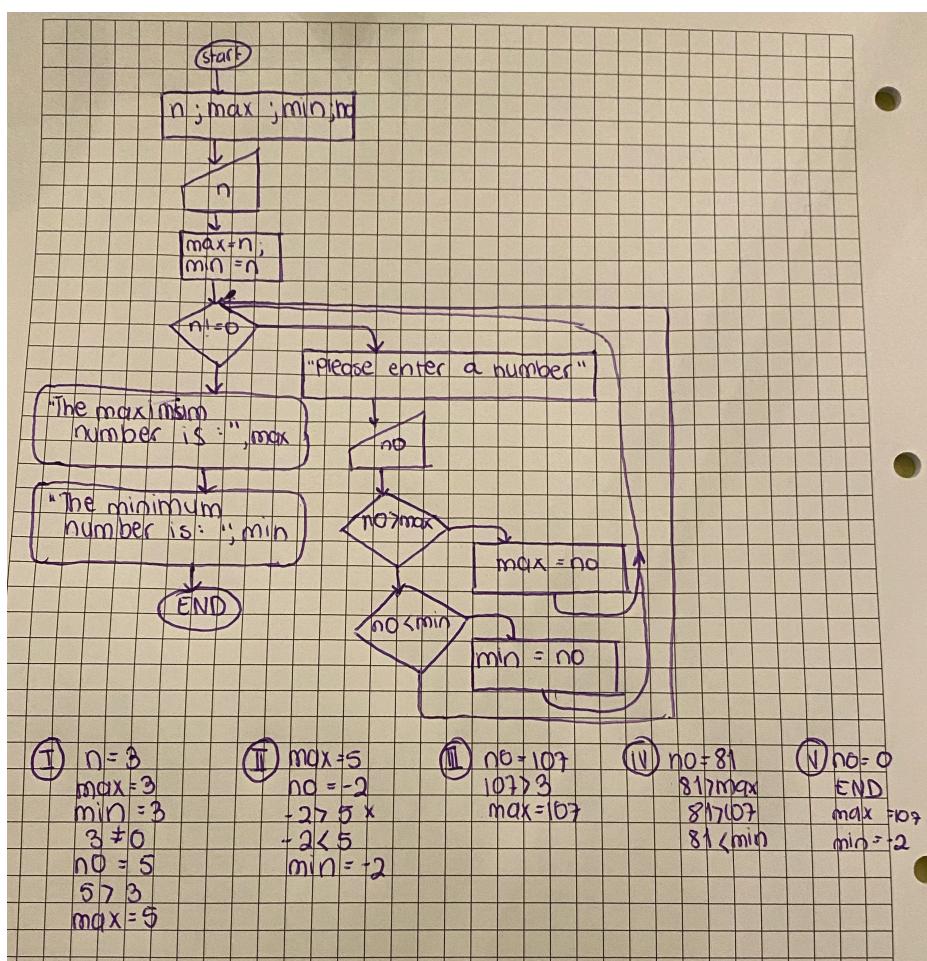
$81 < -1$ (false)

V) $n0=0$

END

$\max=10$

$\min=-2$



Exercise 6:

```
#include <stdio.h>
int main()
{
    int a,t;
    float base=15 , fee=0.44 , tax , total;
    scanf ("%d %d", &a , &t);
    if (a<=500 && t<=500)
    {
        tax=(15.44)*0.05;
        total=15.44+tax;
        printf (" %d %d ", a , t);
        printf ( "%.2lf " , base);
        printf ( " %.2lf " , fee);
        printf ( " %.2lf " , tax);
        printf ( " %.2lf " , total);
    }
    else if (a>500 && t>500)
    {
        float aa=0.25*(a-500);
        float tt=0.15*(t-500);
        tax=(aa+tt+0.44+base)*0.05;
        total = (aa+tt+0.44+base+tax);
        printf (" %d %d ", a , t);
        printf ( "%.2lf " , base );
        printf ( " %.2lf " , aa);
        printf ( " %.2lf " , tt);
        printf ( " %.2lf " , fee);
        printf ( " %.2lf " , tax);
        printf ( " %.2lf " , total);
    }
    else if (a>500 && t<=500)
    {
        float aa=0.25*(a-500);
        tax=(aa+base+fee)*0.05;
        total= (aa+base+fee+tax);
        printf (" %d %d ", a , t);
        printf ( "%.2lf " , base);
        printf ( " %.2lf " , aa);
        printf ( " %.2lf " , fee );
        printf ( " %.2lf " , tax);
        printf ( " %.2lf " , total);
    }
    else if (a<=500 && t>500)
    {
        float tt=0.15*(t-500);
        tax= (tt+base+fee)*0.05;
        total=(tt+0.44+base+tax);
        printf ( " %d %d " , a , t);
        printf ( "%.2lf" , base);
        printf ( " %.2lf " , tt);
        printf ( " %.2lf " , fee);
        printf ( " %.2lf " , tax);
        printf ( " %.2lf " , total);
    }
    return 0;
}
```

