

Programming Fundamentals:

Lab Task_06:

QUESTION # 1:

```
Question_01.cpp
1  /*
2  * The do-while loop system is better for user input because it allows the user to enter a value
3  * and then have the program execute the code inside the loop at least once, regardless of whether
4  * the condition is true or false. This ensures that the program will always execute the code at
5  * least once before checking the condition, which can be useful when the user may not enter a
6  * value that meets the condition the first time.
7  */
8
9  #include <stdio.h>
10 int main() {
11     int num, sum=0;
12     do {
13         printf("Enter a number: ");
14         scanf("%d",&num);
15         sum +=num;
16         printf("The sum is %d\n",sum);
17     } while (num!=0);
18     return 0;
19 }
```

```
C:\Users\pc\Desktop\Uni Work\lab task#6\Question_01.exe
Enter a Number:3
Enter a Number:5
Enter a Number:5
Enter a Number:0
13
-----
Process exited after 5.327 seconds with return value 0
Press any key to continue . . .
```

QUESTION #2:

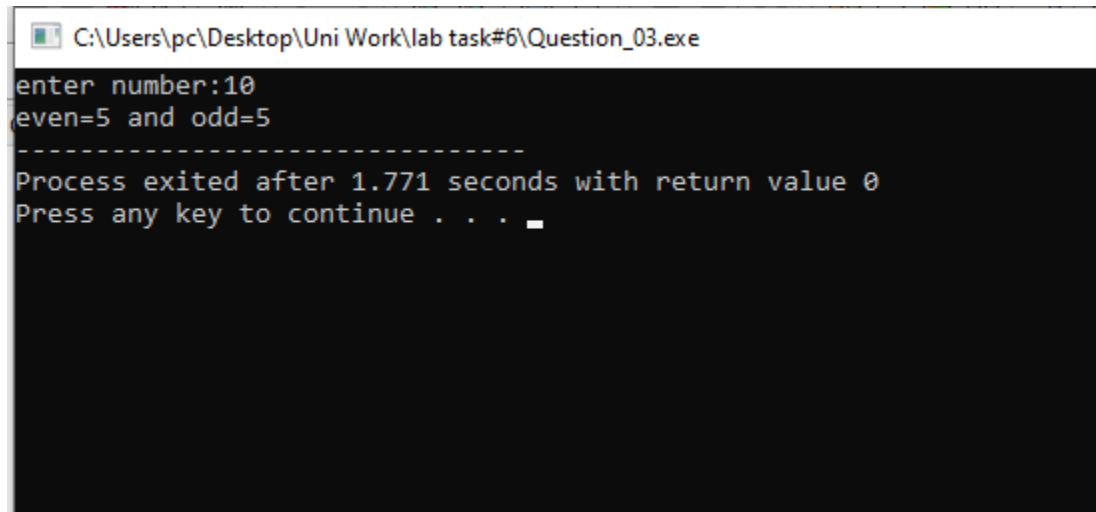
```
1  #include<stdio.h>
2  int main()
3  {
4      int fact=1,n;
5      printf("Enter a number:");
6      scanf("%d",&n);
7      for(int i=1;i<=n;i++){
8          fact=fact*i;
9      }
10     printf("The Factorial of %d is %d",n,fact);
11     return 0;
12 }
```

C:\Users\pc\Desktop\Uni Work\lab task#6\Question_02.exe

```
Enter a number:5
The Factorial of 5 is 120
-----
Process exited after 1.625 seconds with return value 0
Press any key to continue . . .
```

QUESTION # 3:


```
1  #include<stdio.h>
2  int main(){
3      int num,even=0,odd=0;
4      printf("enter number:");
5      scanf("%d",&num);
6      for(int i=1;i<=num;i++)
7      {
8          if(i%2==0){
9              even++;
10         }
11         else{
12             odd++;
13         }
14     }
15     printf("even=%d and odd=%d",even,odd);
16     return 0;
17 }
```



```
C:\Users\pc\Desktop\Uni Work\lab task#6\Question_03.exe
enter number:10
even=5 and odd=5
-----
Process exited after 1.771 seconds with return value 0
Press any key to continue . . .
```

QUESTION # 4:


```
1  #include<stdio.h>
2  int main(){
3      int num,even=0;
4      printf("enter number:");
5      scanf("%d",&num);
6      for(int i=1;i<=num;i++)
7      {
8          if(i%2==0){
9              even=even+i;
10         }
11     }
12
13     printf("The sum of all even numbers till %d is %d ",num,even);
14     return 0;
15 }
16 }
```

 C:\Users\pc\Desktop\Uni Work\lab task#6\Question_04.exe

```
enter number:7
The sum of all even numbers till 7 is 12
-----
Process exited after 1.789 seconds with return value 0
Press any key to continue . . .
```

QUESTION # 5:

```
1  #include<stdio.h>
2  int main(){
3      int num,a;
4      printf("enter number:");
5      scanf("%d",&num);
6      for(int i=1;num>0;i++)
7      {
8          a=num%10;
9          num=num/10;
10         printf("%d",a);
11     }
12     return 0;
13
14 }
```

 C:\Users\pc\Desktop\Uni Work\lab task#6\Question_05.exe

```
enter number:1234
4321
-----
Process exited after 2.283 seconds with return value 0
Press any key to continue . . .
```

QUESTION # 6:

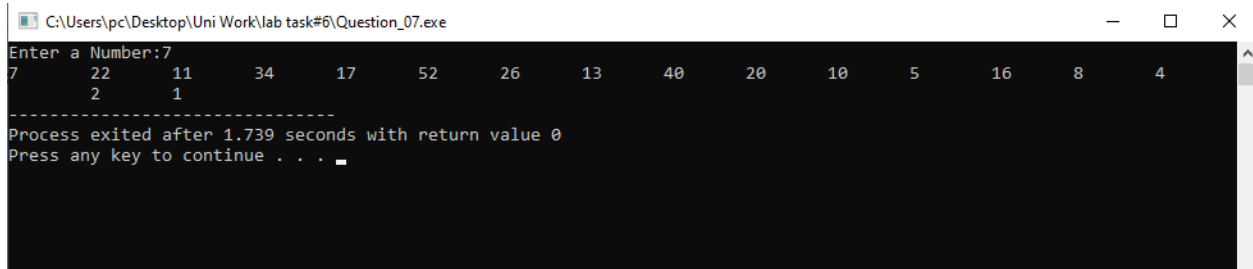
```
1  #include<stdio.h>
2  int main()
3  {
4      int num1,num2,lcm,larger,a_mul,b_mul,gcd;
5      printf("Enter first number:");
6      scanf("%d",&num1);
7      printf("Enter second number:");
8      scanf("%d",&num2);
9      if(num1==num2){
10         printf("LCM is %d",num1);
11     }
12     if(num1>num2){
13         larger=num1;
14     }
15     else
16         larger=num2;
17     for(int i=1;i<larger;i++){
18         if(num1%i==0 && num2%i==0){
19             gcd=i;
20         }
21     }
22     a_mul=num1/gcd;
23     b_mul=num2/gcd;
24     lcm=a_mul*b_mul*gcd;
25     printf("The LCM is %d",lcm);
26     return 0;
27 }
28 }
```

C:\Users\pc\Desktop\Uni Work\lab task#6\Question_06.exe

```
Enter first number:12
Enter second number:15
The LCM is 60
-----
Process exited after 3.315 seconds with return value 0
Press any key to continue . . .
```

QUESTION# 7:

```
1  #include<stdio.h>
2  int main(){
3      int num,ans;
4      printf("Enter a Number:");
5      scanf("%d",&num);
6      printf("%d \t",num);
7      while(num!=1){
8          if(num%2==0){
9              num=num/2;
10         }
11         else{
12             num=(num*3)+1;
13         }
14         printf("%d \t",num);
15     }
16     return 0;
17 }
```



```
C:\Users\pc\Desktop\Uni Work\lab task#6\Question_07.exe
Enter a Number:7
7      22      11      34      17      52      26      13      40      20      10      5      16      8      4
-----
Process exited after 1.739 seconds with return value 0
Press any key to continue . . .
```

QUESTION# 8:

```
#include<stdio.h>
int main(){
    int marks,outstanding,excellent,good,average,below_avg,adequate,pass,fail,only_pass;
    for(int i=1;i<=20;i++)
    {
        printf("Enter Marks:");
        scanf("%d",&marks);
        if(marks>100)
        {
            printf("marks cannot be greater than 100");
            break;
        }
        if(marks<50){
            fail++;
            pass++;
        }
        if(marks>=50 && marks<=61)
        {
            only_pass++;
            pass++;
        }
        if(marks>61 && marks<=65)
        {
            adequate++;
            pass++;
        }
        if(marks>65 && marks<=69)
        {
            below_avg++;
            pass++;
        }
        if(marks>69 && marks<= 74)
        {
            average++;
            pass++;
        }
        if(marks>74 && marks<=85)
        {
            good++;
            pass++;
        }
        if(marks>85 && marks<=89)
        {
            excellent++;
            pass++;
        }
        if(marks>89 && marks<=100)
        {
            outstanding++;
            pass++;
        }
    }
    printf("The number of pass students are %d \n",pass);
    printf("The number of fail students are %d \n",fail);
    printf("The number of outstanding students(A+) are %d \n",outstanding);
    printf("The number of excellent students(A) are %d \n",excellent);
    printf("The number of good students(B+) are %d \n",good);
    printf("The number of average students(B-) are %d \n",average);
    printf("The number of below average students(C+) are %d \n",below_avg);
    printf("The number of adequate students(C) are %d \n",adequate);
    printf("The number of only pass students(C-),(B+),(D-),(D+) are %d \n",only_pass);
    return 0;
}
```



```
Enter Marks:85
Enter Marks:32
Enter Marks:65
Enter Marks:98
Enter Marks:35
Enter Marks:15
Enter Marks:99
Enter Marks:96
Enter Marks:65
Enter Marks:75
Enter Marks:15
Enter Marks:78
Enter Marks:68
Enter Marks:35
Enter Marks:45
Enter Marks:15
Enter Marks:36
Enter Marks:98
Enter Marks:84
Enter Marks:81
The number of pass students are 20
The number of fail students are 8
The number of outstanding students(A+) are 4
The number of excellent students(A) are 1
The number of good students(B+) are 5
The number of average students(B-) are 0
The number of below average students(C+) are 1
The number of adequate students(C) are 58
The number of only pass students(C-),(B+),(D-),(D+) are 0

-----
Process exited after 21.04 seconds with return value 0
Press any key to continue . . . █
```

QUESTION# 9:

```
1  #include<stdio.h>
2  int main()
3  {
4      int score=0,ans,count;
5      for(int i=1;i<=20;i++){
6          printf("Whats 2+2*2? \n 1) 6 \n 2) 8 \n 3) 10 \n 4) 9 \n");
7          scanf("%d",&ans);
8          switch(ans){
9              case 1:
10                 score=score+4;
11                 break;
12             case 2:
13             case 3:
14             case 4:
15                 score=score-1;
16                 break;
17             default:
18                 printf("Invalid Input");
19                 break;
20         }
21         if(i==4 && score==4)
22         {
23             printf("Sorry, you did not qualify for the admission.");
24             break;
25         }
26     }
27 }
28 if(score>=20){
29     printf("Congratulations, you have qualified for the admission");
30 }
31 else
32     printf("Better Luck Next time");
33 }
```

C:\Users\pc\Desktop\Uni Work\lab task#6\Question_09.exe

```
Whats 2+2*2?
1) 6
2) 8
3) 10
4) 9
2
Whats 2+2*2?
1) 6
2) 8
3) 10
4) 9
2
Whats 2+2*2?
1) 6
2) 8
3) 10
4) 9
2
Whats 2+2*2?
1) 6
2) 8
3) 10
4) 9
2
Sorry, you did not qualify for the admission.Better Luck Next time
-----
Process exited after 2.14 seconds with return value 0
Press any key to continue . . .
```