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# Daffodil International University

Department of Software Engineering

## Lab Assignment

Course name: Structured Programming Lab

Course Code: SE 122

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Date of submission: 20/06/2022

## Problem 1:

### Code for problem 1:

frequency of elements in a 1D array.c x determine whether the driver is to be insured or not.c x 1. Factorial of a number.c

```
1 // Name: Foad Khan
2 // ID: 221-35-883
3 #include <stdio.h>
4 int main()
5 {
6     int arr[100], freq[100];
7     int size, i, j, count;
8     printf("Enter size of array: ");
9     scanf("%d", &size);
10    printf("Enter elements in array: ");
11    for(i=0; i<size; i++)
12    {
13        scanf("%d", &arr[i]);
14        freq[i] = -1;
15    }
16    for(i=0; i<size; i++)
17    {
18        count = 1;
19        for(j=i+1; j<size; j++)
20        {
21            if(arr[i]==arr[j])
22            {
23                count++;
24                freq[j] = 0;
25            }
26        }
27        if(freq[i] != 0)
28        {
29            freq[i] = count;
30        }
31    }
32    printf("\nFrequency of all elements of array : \n");
33    for(i=0; i<size; i++)
34    {
35        if(freq[i] != 0)
36        {
37            printf("%d occurs %d times\n", arr[i], freq[i]);
38        }
39    }
40    return 0;
41 }
42 }
```

## Output:

```
"F:\Coding\Cnew\frequency of elements in a 1D array.exe"
Enter size of array: 9
Enter elements in array: 1
2
3
1
1
2
2
2
3

Frequency of all elements of array :
1 occurs 3 times
2 occurs 4 times
3 occurs 2 times

Process returned 0 (0x0)   execution time : 43.481 s
Press any key to continue.
_
```

## Problem 2:

### Code for problem 2:

```
Start here x *Write a C program to get the following pattern 1 23 456 78910.c x Untitled7.c x Untitled6.c x Untitled5.c x
1 // Name:Fuad Khan
2 // ID:221-35-883
3 #include <stdio.h>
4 int main() {
5     int i, j, num = 1;
6     for (i = 1; i <= 4; i++) {
7         for (j = 1; j <= i; ++j) {
8             printf("%d ", num);
9             ++num;
10        }
11        printf("\n");
12    }
13    return 0;
14 }
15
```

### Output:

```
"F:\Coding\C\new\Write a C program to get the following pattern 1 23 456 78910.exe"
1
2 3
4 5 6
7 8 9 10

Process returned 0 (0x0)   execution time : 2.770 s
Press any key to continue.

```

### Problem 3:

#### Code for problem 3:

```
Start here X *determine whether the driver is to be insured or not.c X *1. Factorial of a number.c X
1 // Name:Fuad Khan
2 // ID:221-35-883
3 #include<stdio.h>
4 int main( )
5 {
6     char sex, ms ;
7     int age ;
8     printf ( "Enter age, sex, marital status " ) ;
9     scanf ( "%d %c %c" ,&age, &sex, &ms ) ;
10    if ( ms == 'M' )
11        printf ("Driver should be insured");
12    else
13    {
14        if (sex == 'M')
15        {
16            if (age>30)
17                printf ("Driver should be insured");
18            else
19                printf ("Driver should not be insured");
20        }
21    }
22    else
23    {
24        if (age > 25 )
25            printf ("Driver should be insured");
26        else
27            printf ("Driver should not be insured");
28    }
29    return 0;
30 }
31
```

#### Output:

```
"F:\Coding\C\new\determine whether the driver is to be insured or not.exe"
Enter age, sex, marital status 27
M
U
Driver should not be insured
Process returned 0 (0x0)   execution time : 10.822 s
Press any key to continue.
```

## Problem 4:

### Code for problem 4:

```
1 // Name: Ruad Khan
2 // ID: 221-35-883
3 #include<stdio.h>
4 int main()
5 {
6     int c=0, num, res, n, flag=0, i;
7     while(c!=4)
8     {
9         printf("1. Factorial of a number\n2. Prime or not\n3. Odd or even\n4. Exit\n");
10
11         printf("Enter your choice:");
12         scanf("%d", &c);
13
14         switch(c)
15         {
16             case 1:
17
18                 printf("Enter an integer: ");
19                 scanf("%d", &num);
20                 n=num;
21                 res=num;
22                 while(num>1)
23                 {
24                     res = res*(num-1);
25                     num = num-1;
26                 }
27                 printf("\nFactorial of %d is %d. \n",n, res);
28                 break;
29
30             case 2:
31
32                 printf("Enter an integer: ");
33                 scanf("%d", &num);
34                 n=num;
35                 for(i=2;i<=n/2;i++)
36                 {
37                     if(num%i==0)
38                     {
39                         flag=1;
40                     }
41                 }
42                 if(flag==1)
43                 {
44                     printf("\n%d is not a Prime Number.\n", n);
45                 }
46                 else
47                 {
48                     printf("\n%d is Prime Number.\n", n);
49                 }
50                 break;
51
52             case 3:
53                 printf("Enter an integer: ");
54                 scanf("%d", &num);
55                 n=num;
56                 if(num%2==0)
57                 {
58                     printf("\n%d is Even Number.\n\n",n);
59                 }
60                 else
61                 {
62                     printf("\n%d is Odd Number.\n\n",n);
63                 }
64                 break;
65
66             case 4:
67                 printf("\nExit");
68                 break;
69         }
70     }
71 }
```

## Output:

```
"F:\Coding\C\new\Factorial_prime,odd even, while, switch case.exe"
1. Factorial of a number
2. Prime or not
3. Odd or even
4. Exit
Enter your choice:1
Enter an integer: 4

Factorial of 4 is 24.
1. Factorial of a number
2. Prime or not
3. Odd or even
4. Exit
Enter your choice:2
Enter an integer: 5

5 is Prime Number.1. Factorial of a number
2. Prime or not
3. Odd or even
4. Exit
Enter your choice:3
Enter an integer: 7

7 is Odd Number.

1. Factorial of a number
2. Prime or not
3. Odd or even
4. Exit
Enter your choice:4

Exit
Process returned 0 (0x0)   execution time : 33.106 s
Press any key to continue.
```

## Problem 5:

### Code for problem 5:

```
calculate the sum of the elements of a 2D array.c X frequency of elements in a 1D array.c X determine whether the driver is to be insured
1 // Name: Usad Khan
2 // ID: 221-35-883
3 #include <stdio.h>
4 int main() {
5     int row, column, sum, i, j;
6
7     printf("Please enter how many row you want in your array: ");
8     scanf("%d", &row);
9
10    printf("Please enter how many column you want in your array: ");
11    scanf("%d", &column);
12
13    int matrix[row][column];
14
15    sum = 0;
16
17    printf("Enter element of your array: \n");
18
19    for(i = 0; i < row; i++) {
20        for(j = 0; j < column; j++) {
21            scanf("%d", &matrix[i][j]);
22
23            sum += matrix[i][j];
24        }
25    }
26
27    system("cls");
28
29    printf("Your array is:\n");
30    for(i = 0; i < row; i++) {
31        for(j = 0; j < column; j++) {
32            printf("%d\t", matrix[i][j]);
33        }
34        printf("\n");
35    }
36
37    printf("\n");
38
39    printf("Summition of all elements of your array is: %d\n\n", sum);
40
41    return 0;
42 }
43
```

## Output:

```
"F:\Coding\C\new\calculate the sum of the elements of a 2D array.exe"
Your array is:
1      2      3
4      5      6
7      8      9

Summition of all elements of your array is: 45

Process returned 0 (0x0)   execution time : 15.815 s
Press any key to continue.
```