120CS0196

PROGRAMMING LABORATORY-7

CS1000

Assignment-6

Group-'P7' Section:'E'

Name: Prachi Nandi
Roll no: 120CS0196

Codes are uploaded on my GitHub account :
https://github.com/prachi237/justC

Assignment-7

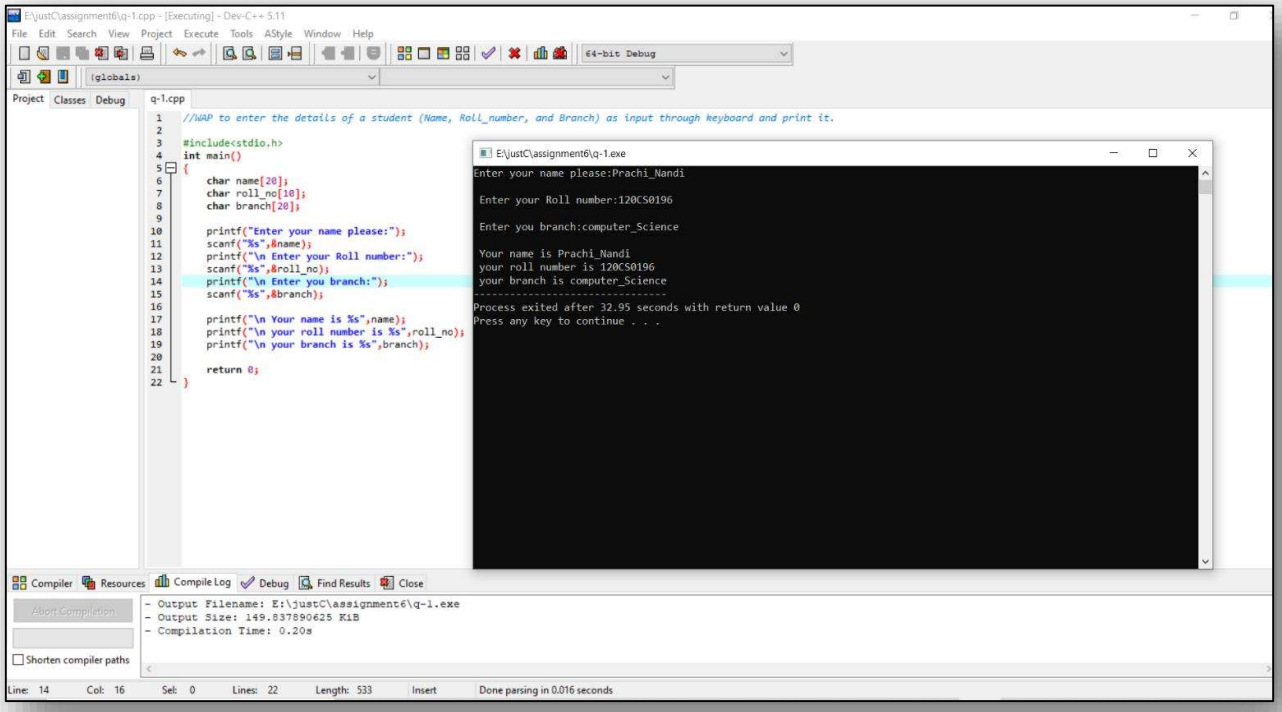
1) Write a menu driven program in C, in which when the user enters a number it will ask the user to enter choice 1) 'p' for checking whether the number is prime or not, 2) 'f' for displaying all the prime factors of user entered number, 3) 'd' for displaying all the prime numbers, before user given number, 4) 'e' for exit from the program and all other choices should display wrong choice. The program should perform the operation according to the submitted choice.

```
#include<stdio.h>
int main()
{
char letter;
   int a,i,factor=0,j,k;
   printf("Enter p to check wether the no. is prime or not .\n");
   printf("Enter f to display all the all the prime factors.\n");
   printf("Enter d to display all the prime numbers\n");
   printf("Enter e to exit the program \n");
   printf("Enter your choice \n");
   scanf("%c",&letter);
   switch (letter)
     {
       case 'p':
          printf("Enter the no. \n");
          scanf("%d",&a);
          k=a/2;
          for(i=2;i<=k;i++)
            {
              if(a%i  == 0)
              {
               factor=1;
```

```
            break;
          }
        }
      if(a==1)
        {
        printf("1 is neither prime nor composite.\n");
        }
      else
        {
        if(factor==1)
          {
          printf("%d is not a prime no.\n",a);
          break;
          }
        else
          {
          printf("%d is a prime no.\n",a);
          }
        }
      break;
  case 'f':
      printf("Enter the no. \n");
      scanf("%d",&a);
      k=a/2;
      for(i=2;i <= k;i++)
        {
          if(a%i  == 0)
          {
          int fa=0;
          for(int o=2;o<i;o++)
            {
            if(i%o==0)
              {
```

```
                fa=1;
                break;
                }
            }
          if(fa==0)
            {
            printf("%d ",i);
            }
          }
       }
    break;
case 'd':
    printf("Enter the no. \n");
    scanf("%d",&a);
    for(int j=1;j<a;j++)
       {
       int f=0;
       for(i=2;i <= j/2 ;i++)
          {
             if(j%i == 0)
             {
              f=1;
              break;
             }
          }
       if(f==0)
          {
          printf("%d ",j);
          }
       }
    break;
case 'e':
    printf("Exit\n");
```

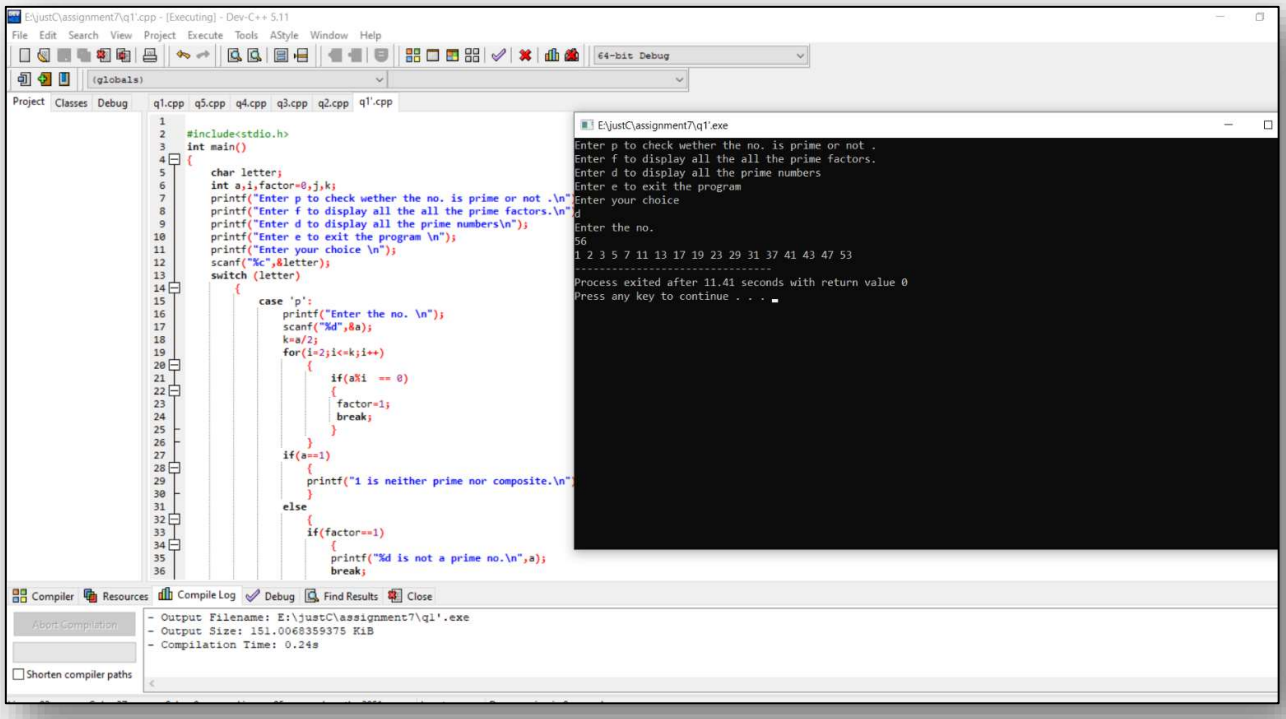
```
            break;
        default :
            printf("enter right choice\n");
    }
}
  return 0;
}
```



2) Write a program to insert new value into an sorted array. Clue: first find the position of the newly inserted element in the sorted array.

```
#include<stdio.h>
int main()
{
int len;
 printf("Enter length of the array: ");
 scanf("%d",&len);
 int arr[len];
 for (int i = 0; i < len; i++)
 {
 printf("Enter the %dth value of array: ",i+1);
 scanf("%d",&arr[i]);
 }

 int k;
 printf("Enter the number which is to be inserted: ");
 scanf("%d",&k);
 int p;

 for (int i = 0; i < len; i++)
 {
 if(k<arr[i])
 {
 p = i;
 break;
 }
 else
 p = len;
 }
```

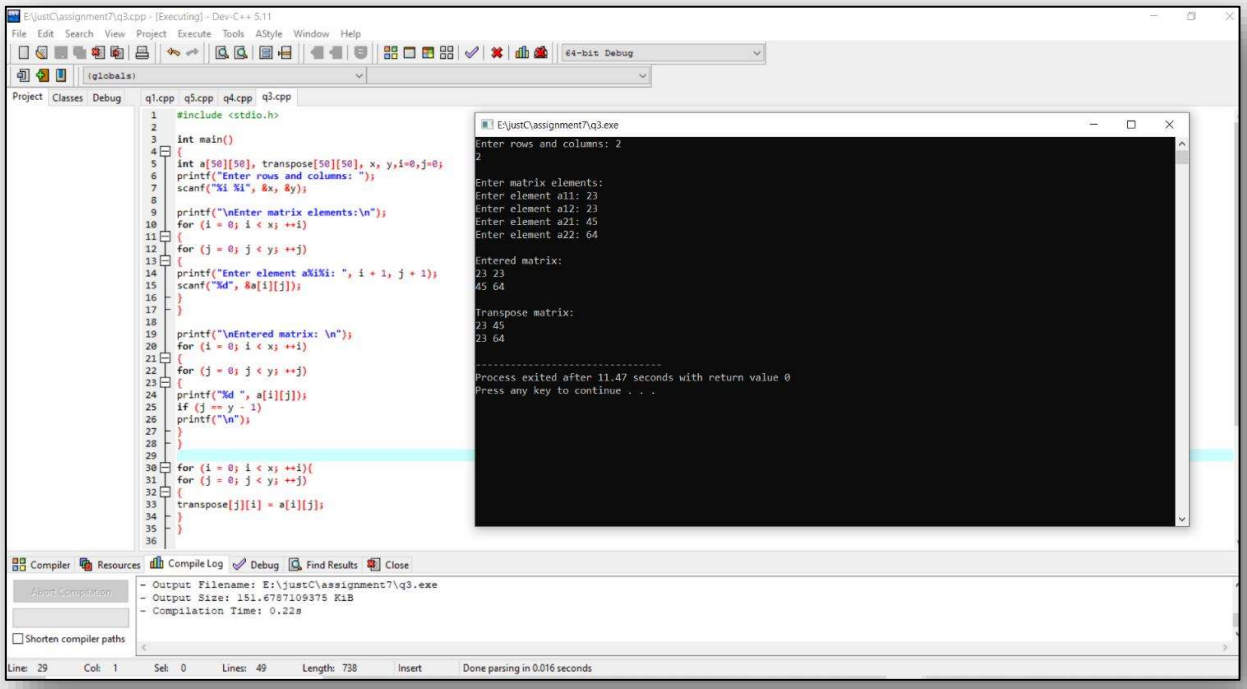
```
int arr2[len+1];
arr2[p]=k;

for (int i = 0; i < p; i++)
arr2[i] = arr[i];

for (int i = p+1; i < len+1; i++)
arr2[i] = arr[i-1];

printf("Array after inserting a new element \n");
 for (int i = 0; i < len+1; i++)
printf("%d ",arr2[i]);
return 0;
}
```



3) Write a C program to find the transpose of a matrix (Two-dimensional array).

```
#include <stdio.h>

int main()

{
    int a[50][50], transpose[50][50], x, y,i=0,j=0;
printf("Enter rows and columns: ");
scanf("%i %i", &x, &y);

printf("\nEnter matrix elements:\n");
for (i = 0; i < x; ++i)
{
for (j = 0; j < y; ++j)
{
printf("Enter element a%i%i: ", i + 1, j + 1);
scanf("%d", &a[i][j]);
}
}

printf("\nEntered matrix: \n");
for (i = 0; i < x; ++i)
{
for (j = 0; j < y; ++j)
{
printf("%d ", a[i][j]);
if (j == y - 1)
printf("\n");
}
}

for (i = 0; i < x; ++i){
for (j = 0; j < y; ++j)
{
transpose[j][i] = a[i][j];
}
}

printf("\nTranspose matrix: \n");
for (i = 0; i < y; ++i)
{
for (j = 0; j < x; ++j)
{
printf("%d ", transpose[i][j]);
if (j == x - 1)
printf("\n");
```

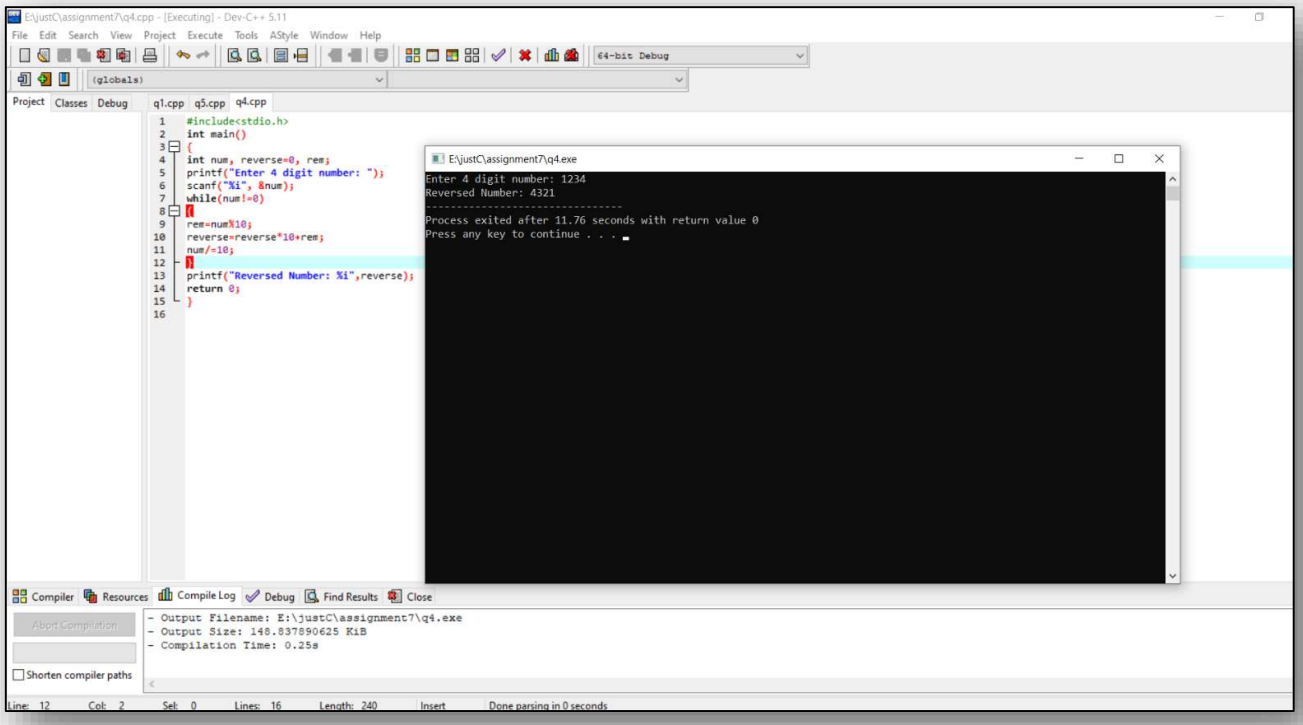
```
}
}

}
    return 0;
}
```



4) Write a program to reverse a 4-digit number which is entered from keyboard. Input: 1234 , Output: 4321

```
#include<stdio.h>
int main()
{
int num, reverse=0, rem;
printf("Enter 4 digit number: ");
```

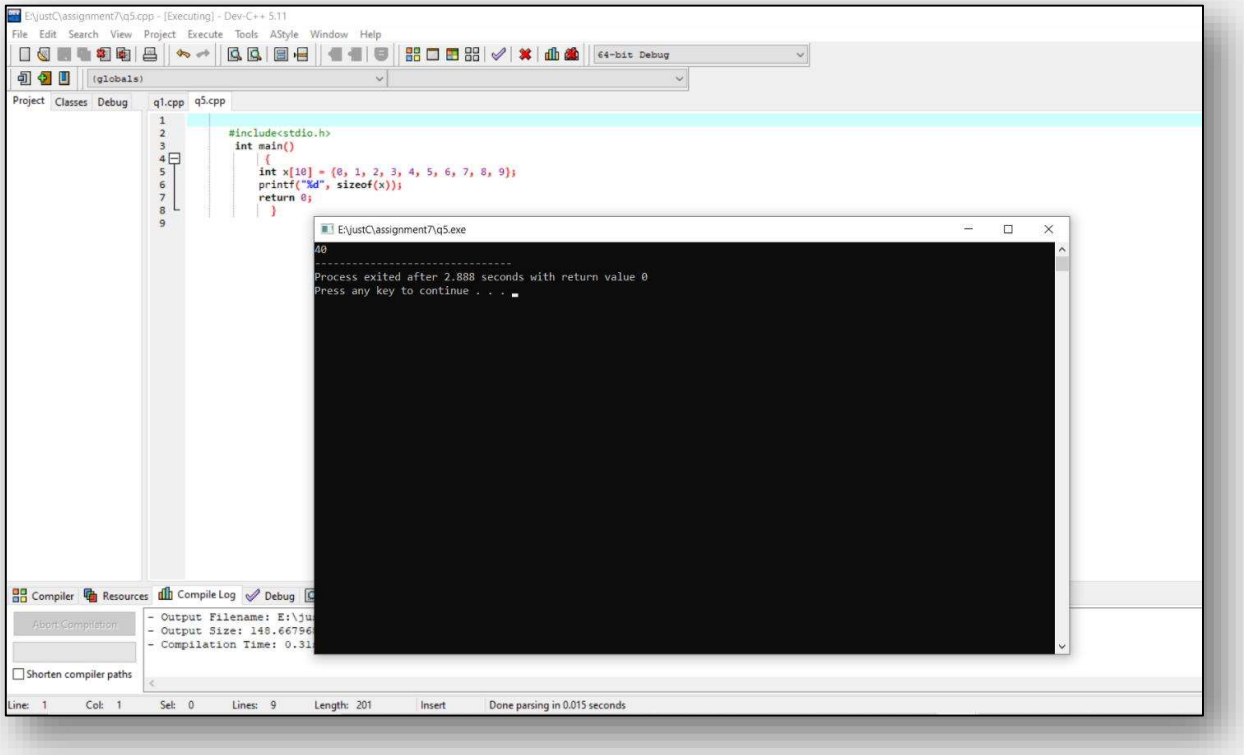
```
scanf("%i", &num);
while(num!=0)
{
rem=num%10;
reverse=reverse*10+rem;
num/=10;
}
printf("Reversed Number: %i",reverse);
return 0;
}
```



5) What will be the output of the c program, and explain the output.

```
#include<stdio.h>
 int main()
    {
    int x[10] = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9};
    printf("%d", sizeof(x));
    return 0;
     }
```

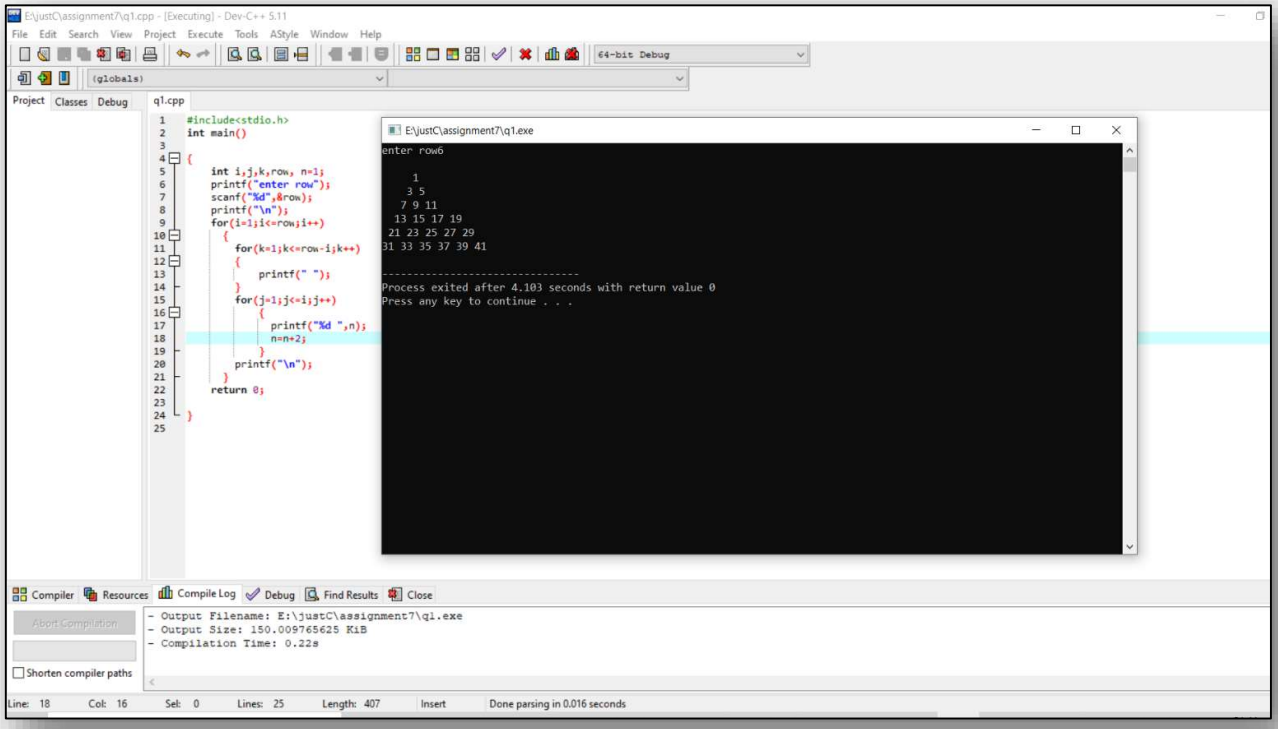
OUTPUT: 40



6) Write a c program to display pyramid structure given below:

```
        1
      3   5
   7    9    11
13  15   17   19
```

```
#include<stdio.h>
#include<string.h>
int main()
{
int i,j,k,row, n=1;
   printf("enter row");
   scanf("%d",&row);
   printf("\n");
   for(i=1;i<=row;i++)
    {
      for(k=1;k<=row-i;k++)
      {
         printf(" ");
      }
      for(j=1;j<=i;j++)
         {
           printf("%d ",n);
           n=n+2;
         }
      printf("\n");
    }
return 0;
}
```



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Submitted by: Prachi Nandi 120CS0196

THANK YOU