

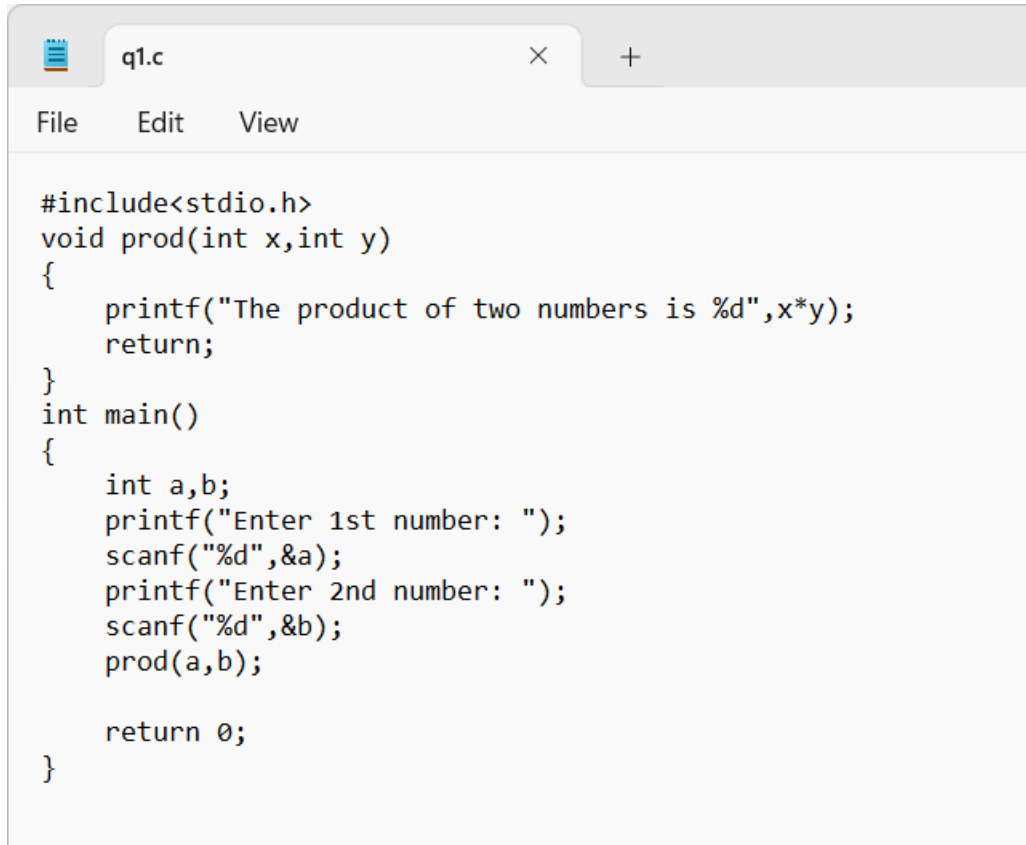
PROGRAMMING FUNDAMENTALS
LAB ASSIGNMENT 9

MASHHOOD RIAZ

24K – 0530

SECTION 1D

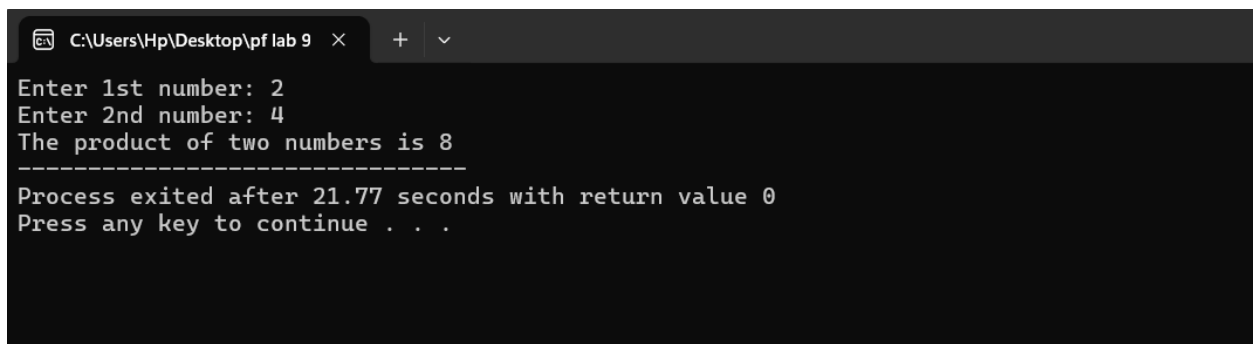
Q1)



The screenshot shows a code editor window with a single tab titled 'q1.c'. The menu bar includes 'File', 'Edit', and 'View'. The code is as follows:

```
#include<stdio.h>
void prod(int x,int y)
{
    printf("The product of two numbers is %d",x*y);
    return;
}
int main()
{
    int a,b;
    printf("Enter 1st number: ");
    scanf("%d",&a);
    printf("Enter 2nd number: ");
    scanf("%d",&b);
    prod(a,b);

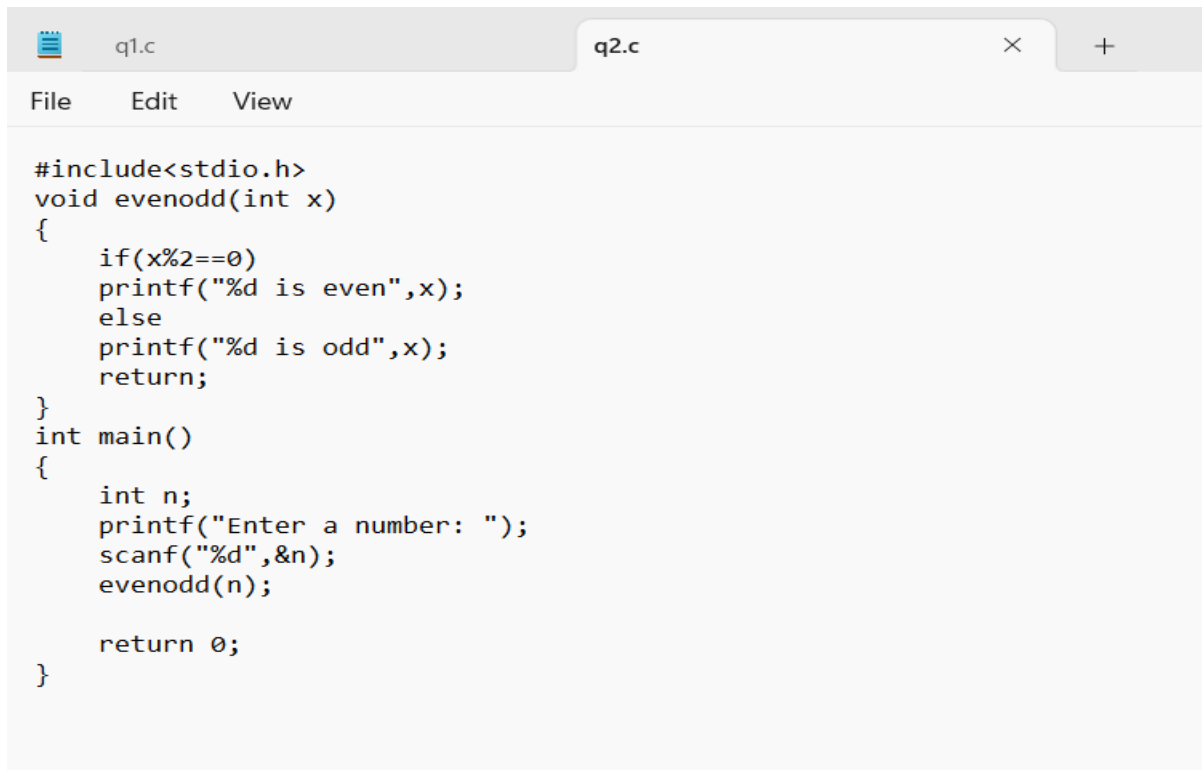
    return 0;
}
```



The screenshot shows a Windows command prompt window with the title bar 'C:\Users\Hp\Desktop\pf lab 9'. The output of the program is as follows:

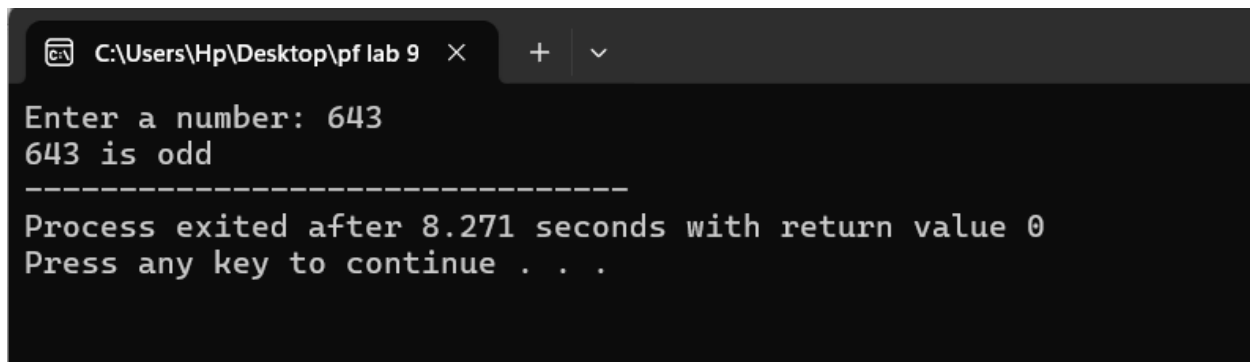
```
Enter 1st number: 2
Enter 2nd number: 4
The product of two numbers is 8
-----
Process exited after 21.77 seconds with return value 0
Press any key to continue . . .
```

Q2)

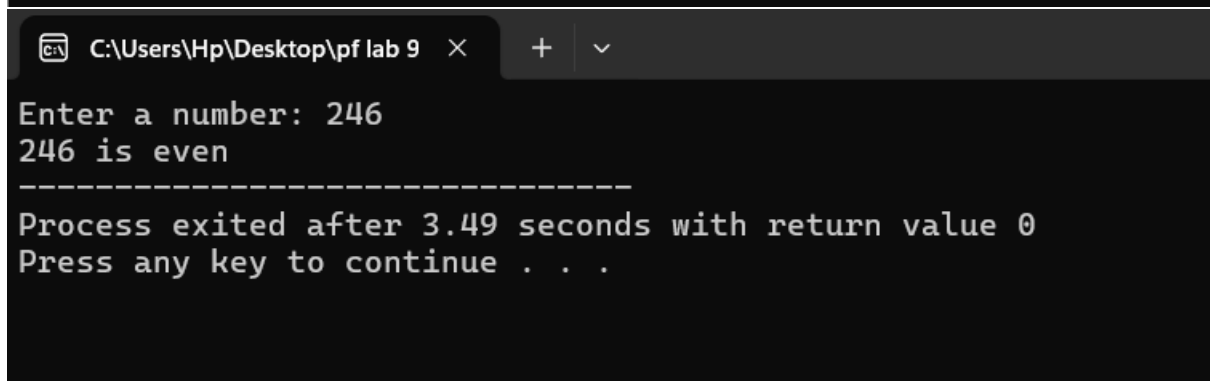


```
#include<stdio.h>
void evenodd(int x)
{
    if(x%2==0)
        printf("%d is even",x);
    else
        printf("%d is odd",x);
    return;
}
int main()
{
    int n;
    printf("Enter a number: ");
    scanf("%d",&n);
    evenodd(n);

    return 0;
}
```

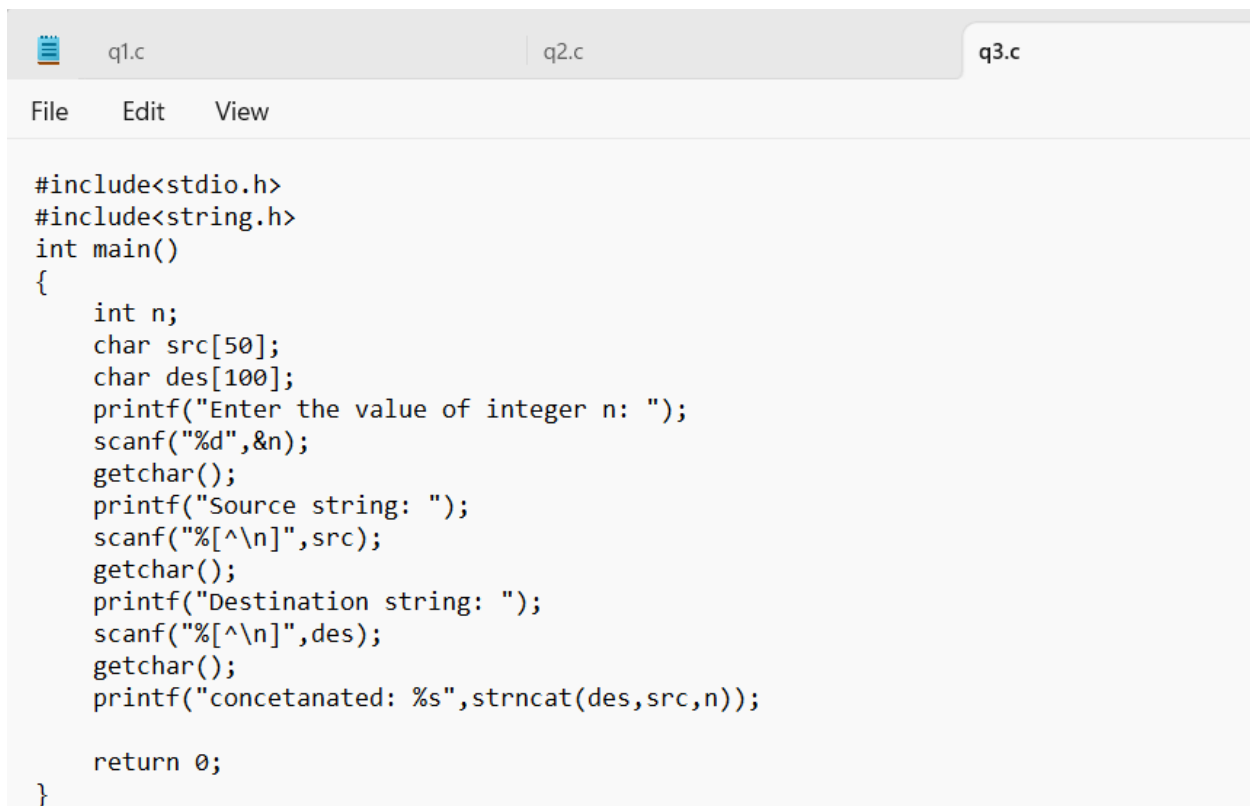


```
C:\Users\Hp\Desktop\pf lab 9 >
Enter a number: 643
643 is odd
-----
Process exited after 8.271 seconds with return value 0
Press any key to continue . . .
```



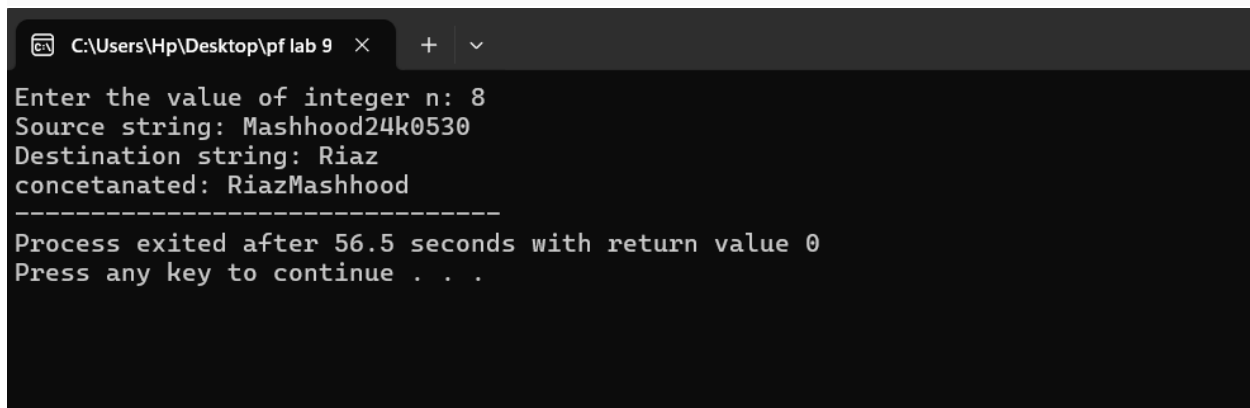
```
C:\Users\Hp\Desktop\pf lab 9 >
Enter a number: 246
246 is even
-----
Process exited after 3.49 seconds with return value 0
Press any key to continue . . .
```

Q3)



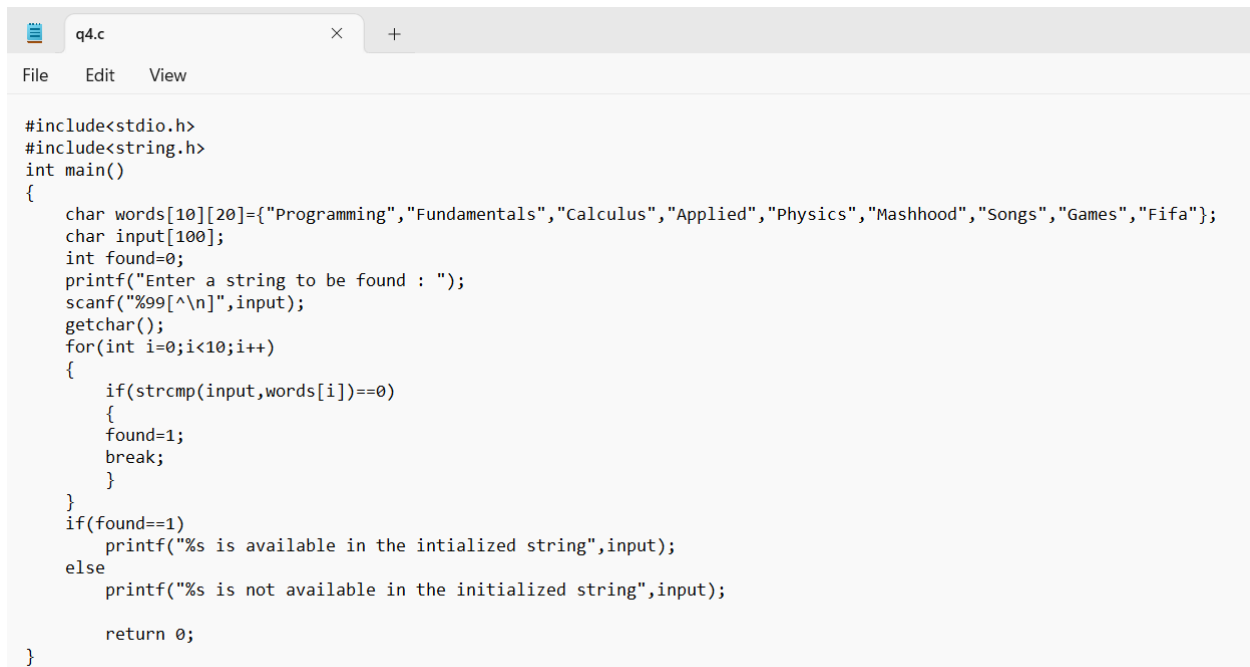
```
#include<stdio.h>
#include<string.h>
int main()
{
    int n;
    char src[50];
    char des[100];
    printf("Enter the value of integer n: ");
    scanf("%d",&n);
    getchar();
    printf("Source string: ");
    scanf("%[^\\n]",src);
    getchar();
    printf("Destination string: ");
    scanf("%[^\\n]",des);
    getchar();
    printf("concatenated: %s",strncat(des,src,n));

    return 0;
}
```



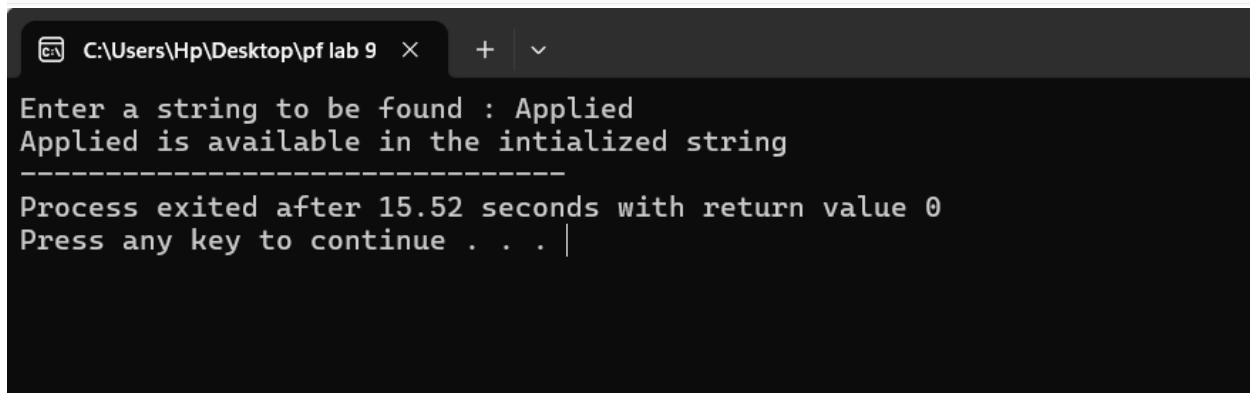
```
C:\Users\Hp\Desktop\pf lab 9 >
Enter the value of integer n: 8
Source string: Mashhood24k0530
Destination string: Riaz
concatenated: RiazMashhood
-----
Process exited after 56.5 seconds with return value 0
Press any key to continue . . .
```

Q4)



```
#include<stdio.h>
#include<string.h>
int main()
{
    char words[10][20]={"Programming","Fundamentals","Calculus","Applied","Physics","Mashhood","Songs","Games","Fifa"};
    char input[100];
    int found=0;
    printf("Enter a string to be found : ");
    scanf("%99[^\n]",input);
    getchar();
    for(int i=0;i<10;i++)
    {
        if(strcmp(input,words[i])==0)
        {
            found=1;
            break;
        }
    }
    if(found==1)
        printf("%s is available in the intialized string",input);
    else
        printf("%s is not available in the initialized string",input);

    return 0;
}
```



```
C:\Users\Hp\Desktop\pf lab 9 >
Enter a string to be found : Applied
Applied is available in the intialized string
-----
Process exited after 15.52 seconds with return value 0
Press any key to continue . . . |
```

Q5)

```
q4.c  q5.C  ×  +
File  Edit  View

#include<string.h>
#include<stdio.h>
int main()
{
    char words[5][20];
    int ispalindrome;
    printf("Enter words with max length of 20 characters :\n");
    for(int k=0;k<5;k++)
    {
        scanf("%[^\n]",words[k]);
        getchar();
    }
    printf("\n");
    for(int i=0;i<5;i++)
    {
        ispalindrome=1;
        for(int j=0;j<strlen(words[i]);j++)
        {
            ispalindrome=0;
            if(words[i][j]==words[i][strlen(words[i])-j-1])
                ispalindrome=1;
            else
            {
                ispalindrome=0;
                break;
            }
        }
        if(ispalindrome==1)
        {
            printf("%s is a palindrome string\n",words[i]);
        }
    }

    return 0;
}
```

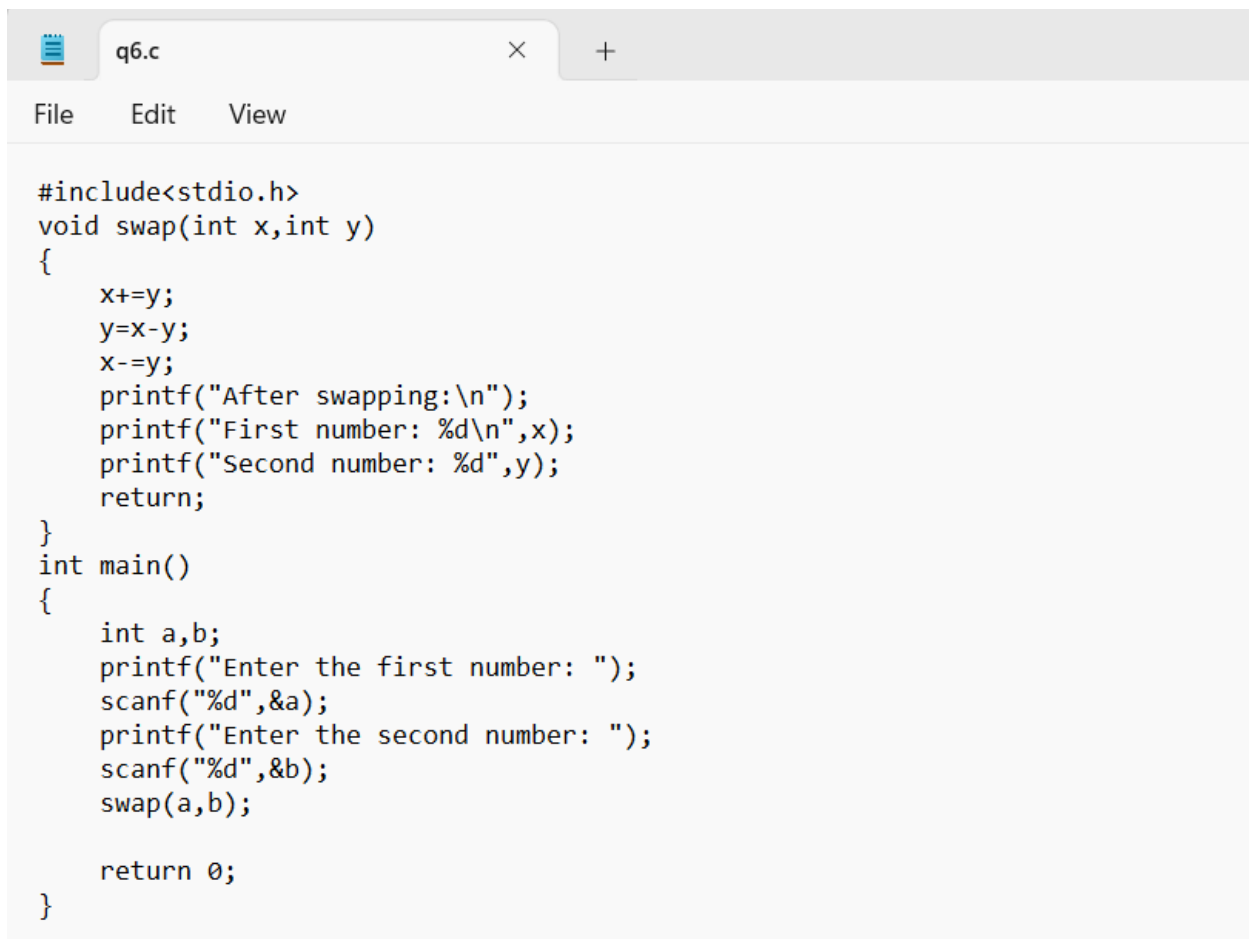
```
C:\Users\Hp\Desktop\pf lab 9  ×  +  ∨

Enter words with max length of 20 characters :
Mashhood
level
radar
madam
racecar

level is a palindrome string
radar is a palindrome string
madam is a palindrome string
racecar is a palindrome string

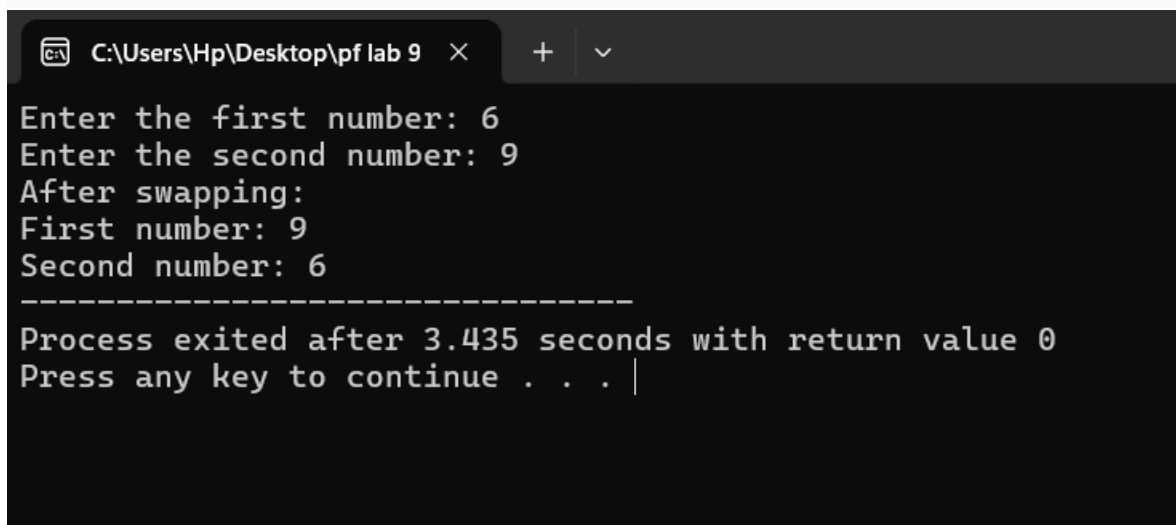
-----
Process exited after 63.4 seconds with return value 0
Press any key to continue . . .
```

Q6)



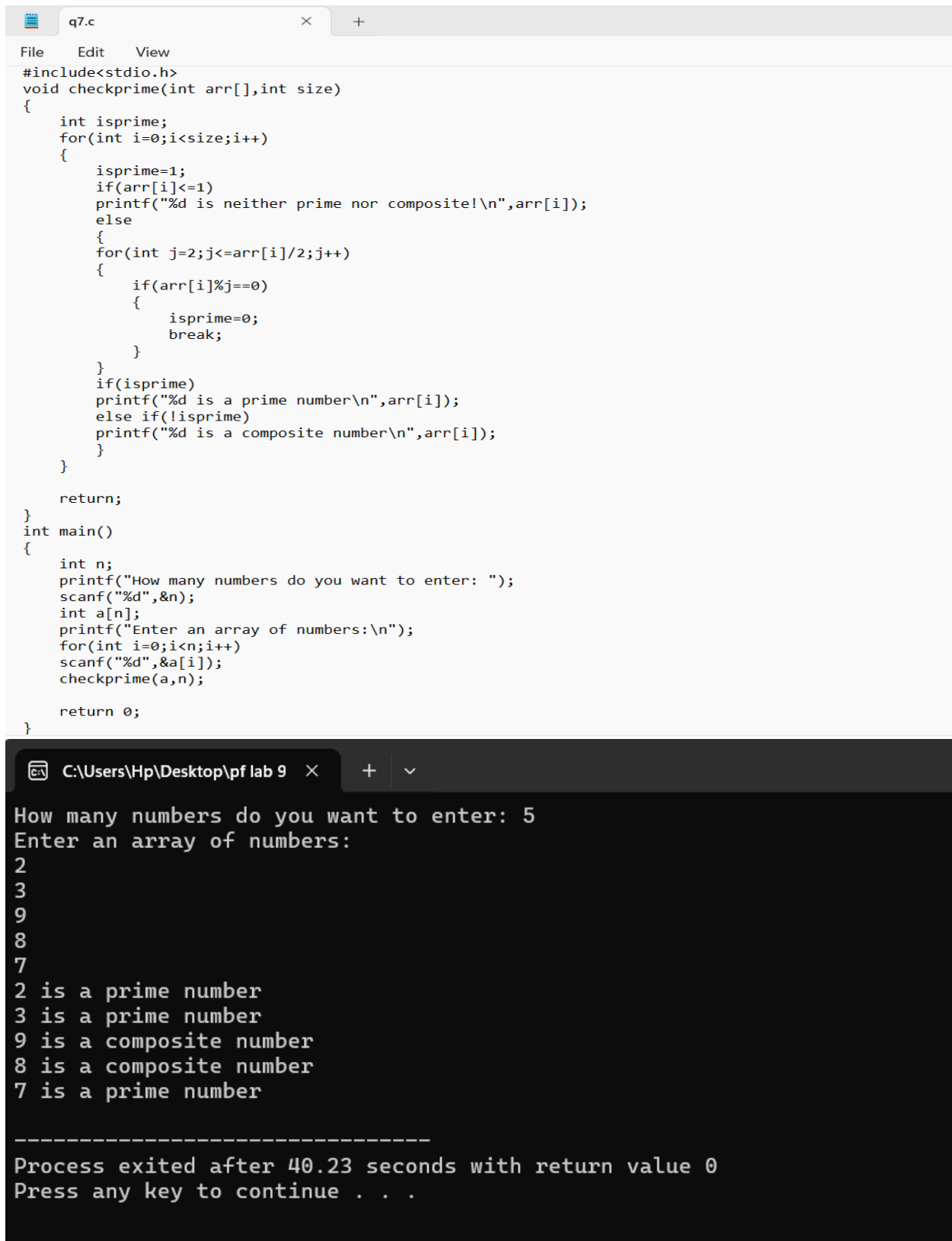
```
#include<stdio.h>
void swap(int x,int y)
{
    x+=y;
    y=x-y;
    x-=y;
    printf("After swapping:\n");
    printf("First number: %d\n",x);
    printf("Second number: %d",y);
    return;
}
int main()
{
    int a,b;
    printf("Enter the first number: ");
    scanf("%d",&a);
    printf("Enter the second number: ");
    scanf("%d",&b);
    swap(a,b);

    return 0;
}
```



```
C:\Users\Hp\Desktop\pf lab 9 >
Enter the first number: 6
Enter the second number: 9
After swapping:
First number: 9
Second number: 6
-----
Process exited after 3.435 seconds with return value 0
Press any key to continue . . . |
```

Q7)



The image shows a C program in a text editor and its execution in a terminal. The program, named q7.c, defines a function checkprime that checks if numbers in an array are prime or composite. The main function prompts the user for the number of elements and the array values, then calls checkprime. The terminal output shows the program running with input values 2, 3, 9, 8, and 7, correctly identifying 2 and 3 as prime and 9 and 8 as composite. The program exits with a return value of 0.

```
q7.c
File Edit View
#include<stdio.h>
void checkprime(int arr[],int size)
{
    int isprime;
    for(int i=0;i<size;i++)
    {
        isprime=1;
        if(arr[i]<=1)
            printf("%d is neither prime nor composite!\n",arr[i]);
        else
        {
            for(int j=2;j<=arr[i]/2;j++)
            {
                if(arr[i]%j==0)
                {
                    isprime=0;
                    break;
                }
            }
            if(isprime)
                printf("%d is a prime number\n",arr[i]);
            else if(!isprime)
                printf("%d is a composite number\n",arr[i]);
        }
    }

    return;
}

int main()
{
    int n;
    printf("How many numbers do you want to enter: ");
    scanf("%d",&n);
    int a[n];
    printf("Enter an array of numbers:\n");
    for(int i=0;i<n;i++)
        scanf("%d",&a[i]);
    checkprime(a,n);

    return 0;
}
```

```
C:\Users\Hp\Desktop\pf lab 9
How many numbers do you want to enter: 5
Enter an array of numbers:
2
3
9
8
7
2 is a prime number
3 is a prime number
9 is a composite number
8 is a composite number
7 is a prime number

-----
Process exited after 40.23 seconds with return value 0
Press any key to continue . . .
```

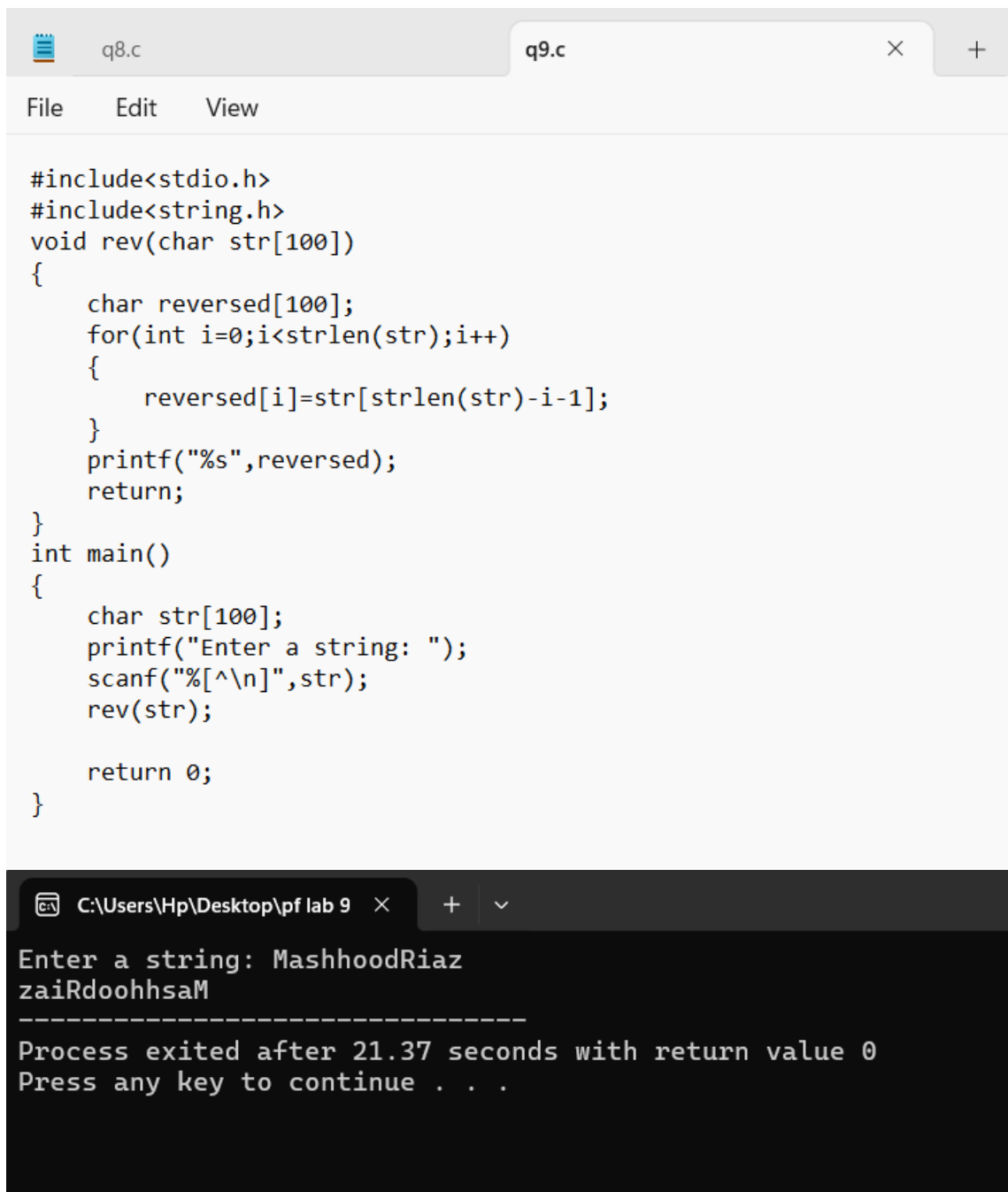

Q8)

```
q8.c × + q8.c × +
File Edit View File Edit View

#include<stdio.h>
int choice;
void printoptions()
{
    printf("Choose from the options given below:\n");
    printf("1. Addition\n");
    printf("2. Subtraction\n");
    printf("3. Multiplication\n");
    printf("4. Division\n");
    printf("Other number to Exit\n");
    return;
}
void sum(int x,int y)
{
    printf("sum: %d\n",x+y);
    return;
}
void subtraction(int x,int y)
{
    if(choice==1){
        printf("difference: %d\n",x-y);
    }
    else if(choice==2){
        printf("difference: %d\n",y-x);
    }
    return;
}
void product(int x,int y)
{
    printf("Product: %d\n",x*y);
    return;
}
void division(int x,int y)
{
    if(choice==1)
    {
        if(y!=0){
            printf("division: %f\n",(float)x/y);
        }
        else{
            printf("Division not possible\n");
        }
    }
    else if(choice==2)
    {
        if(x!=0){
            printf("division: %f\n",(float)y/x);
            printf("division: %f\n",(float)y/x);
        }
        else{
            printf("Division not possible\n");
        }
    }
    return;
}
int main()
{
    int a,b;
    printf("Enter first number: ");
    scanf("%d",&a);
    printf("Enter second number: ");
    scanf("%d",&b);
    while(1)
    {
        int opt;
        printoptions();
        printf("option: ");
        scanf("%d",&opt);
        switch(opt)
        {
            case 1:
                sum(a,b);
                break;
            case 2:
                printf("Choose from the following:\n");
                printf("1. a-b\n");
                printf("2. b-a\n");
                printf("option: ");
                scanf("%d",&choice);
                subtraction(a,b);
                break;
            case 3:
                product(a,b);
                break;
            case 4:
                printf("Choose from the following:\n");
                printf("1. a/b\n");
                printf("2. b/a\n");
                printf("option: ");
                scanf("%d",&choice);
                division(a,b);
                break;
            default:
                return 0;
        }
    }
}
```

```
Enter first number: 2
Enter second number: 2
Choose from the options given below:
1. Addition
2. Subtraction
3. Multiplication
4. Division
Other number to Exit
option: 1
sum: 4
Choose from the options given below:
1. Addition
2. Subtraction
3. Multiplication
4. Division
Other number to Exit
option: 2
Choose from the following:
1. a-b
2. b-a
option: 1
difference: 0
Choose from the options given below:
1. Addition
2. Subtraction
3. Multiplication
4. Division
Other number to Exit
option: 3
Product: 4
Choose from the options given below:
1. Addition
2. Subtraction
3. Multiplication
4. Division
Other number to Exit
option: 4
Choose from the following:
1. a/b
2. b/a
option: 2
division: 1.000000
```

Q9)



The image shows a C program in a code editor and its execution in a terminal. The code is a program to reverse a string. It includes `stdio.h` and `string.h`. The `rev` function takes a character array `str` and reverses it by iterating from the end to the beginning, storing the reversed characters in a new array `reversed`. The `main` function prompts the user to enter a string, reads it using `scanf`, calls `rev`, and prints the result. The terminal output shows the input string "MashhoodRiaz" being reversed to "zaIRdooohsaM".

```
#include<stdio.h>
#include<string.h>
void rev(char str[100])
{
    char reversed[100];
    for(int i=0;i<strlen(str);i++)
    {
        reversed[i]=str[strlen(str)-i-1];
    }
    printf("%s",reversed);
    return;
}
int main()
{
    char str[100];
    printf("Enter a string: ");
    scanf("%[^\\n]",str);
    rev(str);

    return 0;
}
```

Enter a string: MashhoodRiaz
zaIRdooohsaM

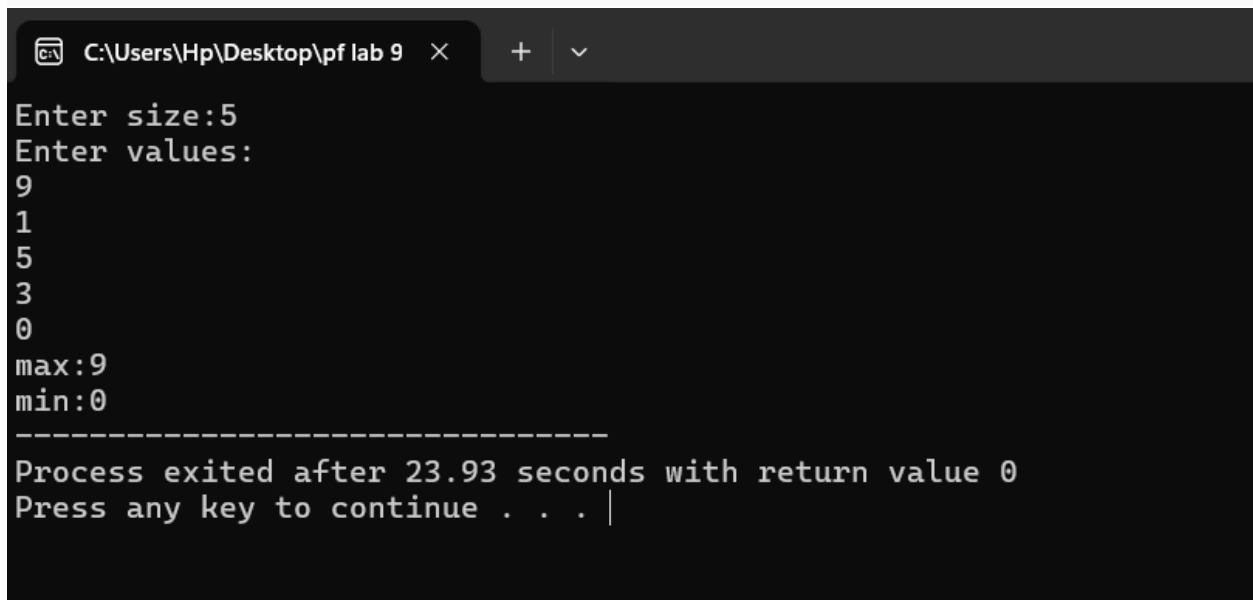
Process exited after 21.37 seconds with return value 0
Press any key to continue . . .

Q10)



```
#include<stdio.h>
void maxmin(int a[],int n)
{
    int min=a[0];
    int max=a[0];
    for(int i=0;i<n;i++)
    {
        if(max<a[i])
            max=a[i];
        else if(min>a[i])
            min=a[i];
    }
    printf("max:%d\nmin:%d",max,min);
    return;
}
int main()
{
    int n;
    printf("Enter size:");
    scanf("%d",&n);
    int a[n];
    printf("Enter values:\n");
    for(int i=0;i<n;i++)
        scanf("%d",&a[i]);
    maxmin(a,n);

    return 0;
}
```



```
C:\Users\Hp\Desktop\pf lab 9
Enter size:5
Enter values:
9
1
5
3
0
max:9
min:0
-----
Process exited after 23.93 seconds with return value 0
Press any key to continue . . . |
```