PF LAB :9

24K-0514

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QUESTION 1:

Write a C function that takes two numbers as input and returns their product.

```c
#include <stdio.h>

int function(int x,int y)
{
return x*y;
}

int main()
{
    int a,b;
    printf("Enter number 1:\n");
    scanf("%d",&a);
    printf("Enter number 2:\n");
    scanf("%d",&b);

    int product=function(a,b);
    printf("\n Product is %d",product);
    return 0;

}
```

OUTPUT:

```
Microsoft Windows [Version 10.0.19044.3324]
(c) Microsoft Corporation. All rights reserved.

C:\Users\k240514>gcc product.c -o product.exe

C:\Users\k240514>product.exe
Enter number 1:
7
Enter number 2:
4

 Product is 28
C:\Users\k240514>SS
```

QUESTION 2:

Write a function that checks if a given number is even or odd.

```
Users > k240514 > C product.c > main()
#include <stdio.h>

void function(int x)
{
if(x%2==0)
{
printf("\n It is an even number");
}
else
{
printf("\n It is an odd number");
}
}

int main()
{
    int a;
    printf("Enter number\n");
    scanf("%d",&a);

    function(a);
    return 0;

}
```

OUTPUT:

```
C:\Users\k240514>
C:\Users\k240514>product.exe
Enter number
9

 It is an odd number
C:\Users\k240514>product.exe
Enter number
6

 It is an even number
C:\Users\k240514>
```

QUESTION 3:

Write a program that takes a destination string and a source string as input. Then, take an integer n as input and append only the first n characters of the source string to the destination. Print the new concatenated string.

```c
#include <stdio.h>
#include<string.h>

int main() {

 char dest[40],source[40];
 int n;
 printf("\n Enter number of chracters to concat:");
 scanf("%d",&n);

 printf("\n Enter source string:");
 scanf(" %[^\n]s",source);
 printf("\n Enter destination string:");
 scanf(" %[^\n]s",dest);
 strcat(dest," " );
 strncat(dest ,source,n);
 printf(" %s",dest);
    return 0;
}
```

OUTPUT:

```
C:\Users\k240514>gcc dest.c -o dest.exe

C:\Users\k240514>dest.exe

 Enter number of chracters to concat:3

 Enter source string:umer

 Enter destination string:farooq
 farooq ume
C:\Users\k240514>
```

QUESTION 4:

Write a program that initializes a 2D character array with a list of words. Then, take a word as input from the user and check if it exists in the array. Display "Found" if it's there, otherwise display "Not Found".

```
> Users > k240514 > C found.c > main()
#include<stdio.h>
#include<string.h>

int main()
 {

 char array[4][10]={"good","bad","best","better"};
 char word[10];
 int count=0;
 printf("\n Enter a word:");
 scanf( "%s",word);
 for(int i=0;i<4;i++)
 {
      if(strcmp(array[i],word)==0)
      {
          printf("\n FOUND");

          count ++;
          break;
      }
 }
          if(count==0)
          {
          printf("\n NOT FOUND");
          }
    return 0;
 }
```

OUPUT:

```
C:\Users\k240514>gcc found.c -o found.exe

C:\Users\k240514>found.exe

 Enter a word:good

 FOUND
C:\Users\k240514>found.exe

 Enter a word:best

 FOUND
C:\Users\k240514>found.exe

 Enter a word:tree

 NOT FOUND
C:\Users\k240514>
```

QUESTION 5:

Create a program that accepts a 2D array of strings (e.g., 5 words with a max length of 20 characters each). Determines if each word (row) is a palindrome. Outputs “Palindrome” or “Not Palindrome” for each word. A palindrome is a word that reads the same forward and backward. For example: "madam", "racecar", "level", "radar".

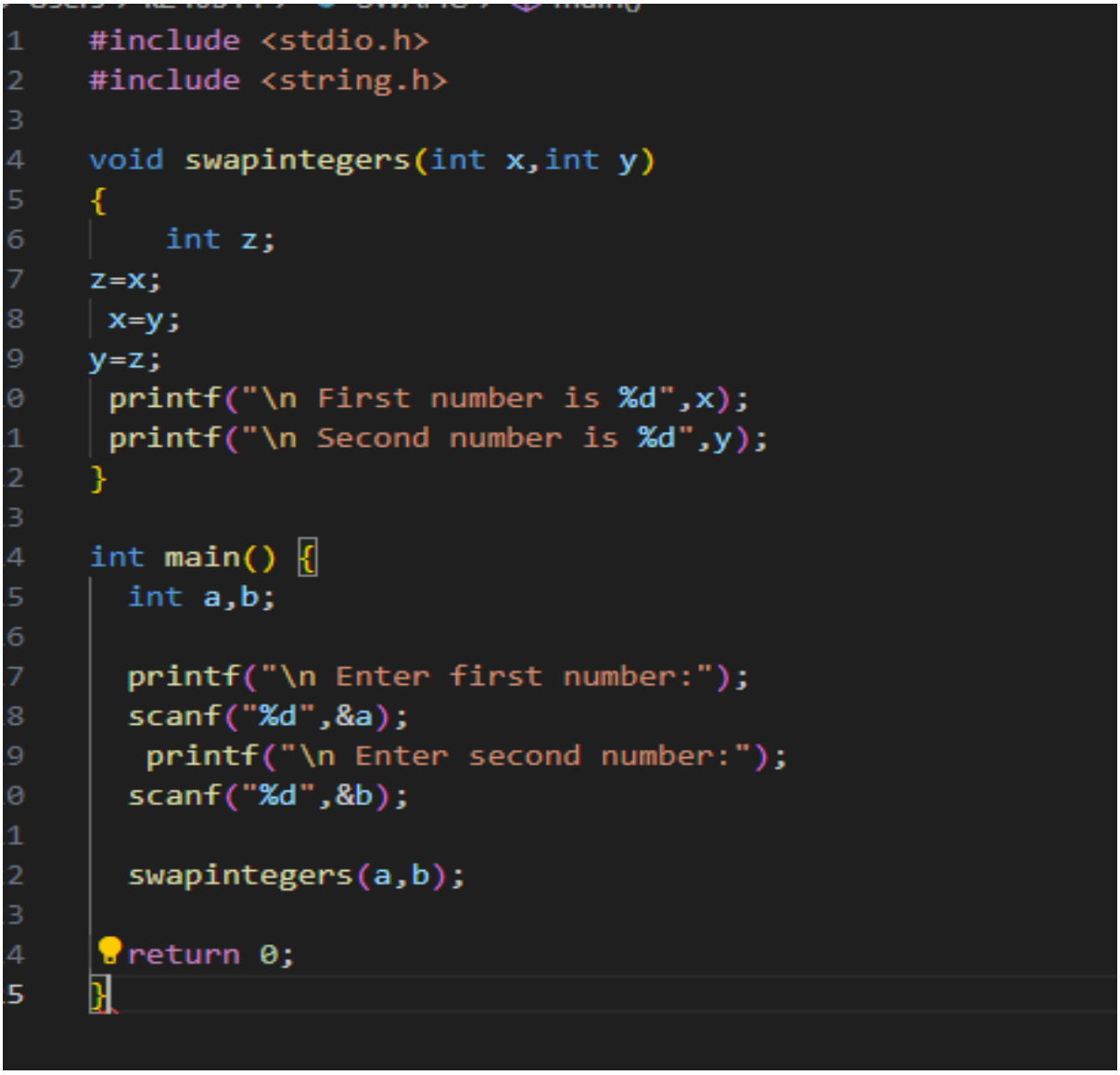
```c
#include <stdio.h>
#include <string.h>

int main() {
    char word[5][20];
    char word1[10], word2[10];
    int r, b;

    for (int i = 0; i < 4; i++) {
        printf("\n Enter a word: ");
        scanf("%s", word[i]);

        b = strlen(word[i]);
        r = b / 2;

        for (int j = 0; j < r; j++) {
            word1[j] = word[i][j];
        }
        word1[r]= '\0';
        int a = 0;
        for (int k = b - 1; k >= r+(b%2); k--) {
            word2[a] = word[i][k];
            a++;
        }
        word2[a]='\0';
        if (strcmp(word1, word2) == 0)
        {
            printf("\n Word is palindrome");
        }
        else
        {
            printf("\n Word is not palindrome");
        }

        r = 0;
        b = 0;
    }
  return 0;
}
```

OUTPUT:

```
Enter a word: madam

Word is palindrome
Enter a word: racecar

Word is palindrome
Enter a word: adfda

Word is palindrome
Enter a word: sfsd

Word is not palindrome
--------------------------------
Process exited after 16.6 seconds with return value 0
Press any key to continue . . .
```

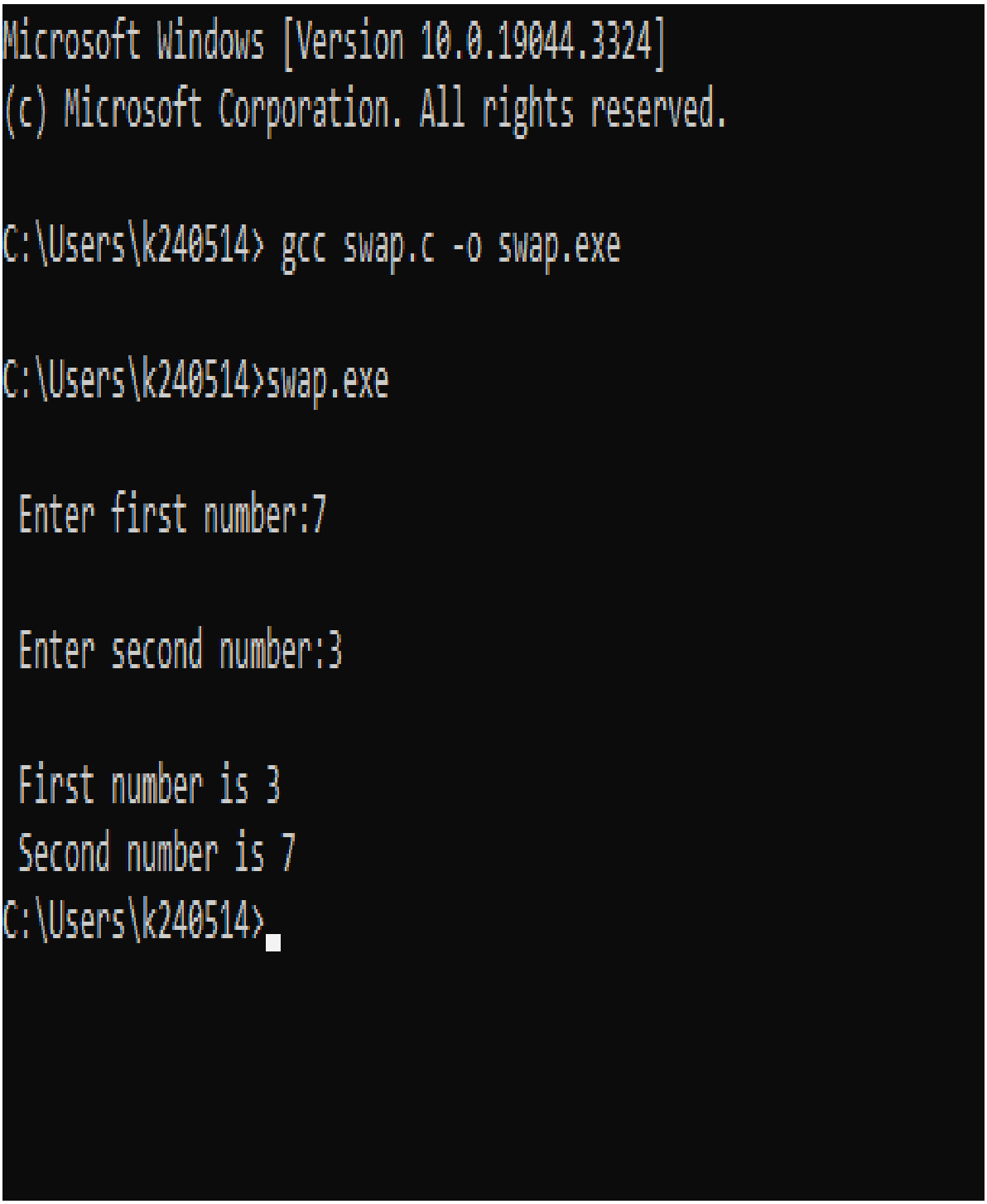
QUESTION 6:

Create a C program that swaps the values of two integers using a user-defined function, Swap Integers. The user inputs two integer values, and the program uses the function to swap them. It should perform the swap and display the updated values.



```c
#include <stdio.h>
#include <string.h>

void swapintegers(int x,int y)
{
    int z;
z=x;
 x=y;
y=z;
 printf("\n First number is %d",x);
 printf("\n Second number is %d",y);
}

int main() {
  int a,b;

  printf("\n Enter first number:");
  scanf("%d",&a);
   printf("\n Enter second number:");
  scanf("%d",&b);

  swapintegers(a,b);

return 0;
}
```

OUTPUT:


Microsoft Windows [Version 10.0.19044.3324]
(c) Microsoft Corporation. All rights reserved.
C:\Users\k240514> gcc swap.c -o swap.exe
C:\Users\k240514>swap.exe
Enter first number:7
Enter second number:3
First number is 3
Second number is 7
C:\Users\k240514>

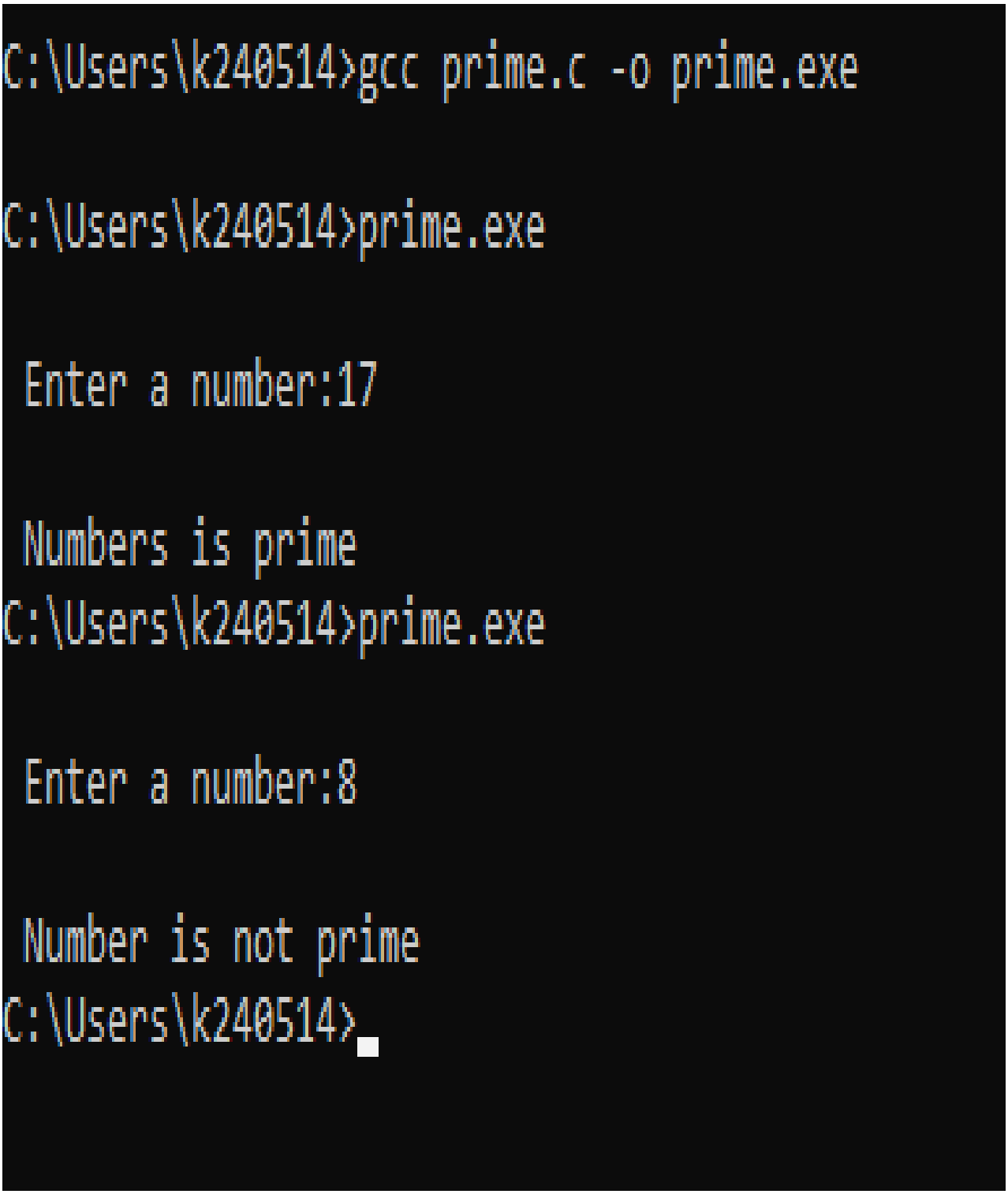
QUESTION 7:

Implement a function that checks if a given integer is a prime number. Use this function in the main program to check if numbers entered by the user are prime.

: > Users > k240514 > PRIME.C > main()

```c
#include <stdio.h>

int function(int a)
{
    int count=0;
    for(int i=2;i<=a;i++)
    {
        if(a%i==0)
        {
            count++;
        }
    }
        if(count==1)
        {
            return 1;
        }
        else
        {
            return 0;
        }
}
int main()
{
  int number;
  printf("\n Enter a number:");
  scanf("%d",&number);

  int prime = function(number);

  if(prime==1)
  {
      printf("\n Numbers is prime");
  }
  else
  {
      printf("\n Number is not prime");
  }

    return 0;
}
```

OUTPUT:


C:\Users\k240514>gcc prime.c -o prime.exe
C:\Users\k240514>prime.exe
Enter a number:17
Numbers is prime
C:\Users\k240514>prime.exe
Enter a number:8
Number is not prime
C:\Users\k240514>

QUESTION 8:

Write a C program with a user-defined function calculate to perform basic arithmetic operations such as addition, subtraction, multiplication, and division. The program should take two numbers and an operation choice as input, and then use the function to perform the operation.

```c
#include <stdio.h>

int function(int x,int y,char z)
{
   printf("\n Enter operand:");
   scanf(" %c",&z);
        if(z=='+')
        {
          int a=x+y;
          return a;
        }
        if(z=='-')
        {
          int a=x-y;
          return a;
        }
        if(z=='*')
        {
          int a=x*y;
          return a;
        }
        if(z=='/')
        {
          int a=x/y;
          return a;
        }
}
int main()
{
  int a,b;
  char operand;
  printf("\n Enter first number:");
  scanf("%d",&a);
  printf("\n Enter second number:");
  scanf("%d",&b);

                  int function(int x, int y, char z)
   int operation=function(a,b,operand);

printf("The anwser is %d",operation);
    return 0;
}
```

OUTPUT:

```
C:\Users\k240514>opr.exe

 Enter first number:7

 Enter second number:4

 Enter operand:+
The anwser is 11
C:\Users\k240514>
```

QUESTION 9:

Create a function that reverses a given string and returns the reversed string. Use this function in the main program to display the reversed string entered by the user.

> Users > k240514 > REVERSE.C > main()

```c
#include <stdio.h>
#include <string.h>

void function(char word1[40],char word2[40])
{
    int r=strlen(word1);
    int a=0;
    for(int i=r-1;i>=0;i--)
    {
        word2[a]=word1[i];
        a++;
    }
}

int main() {
    char word[40];
    char reverse[40];

    printf("\n Enter a word: ");
    scanf("%s", word);

    function(word,reverse);
     printf("%s",reverse);

  return 0;
}
```

OUTPUT:

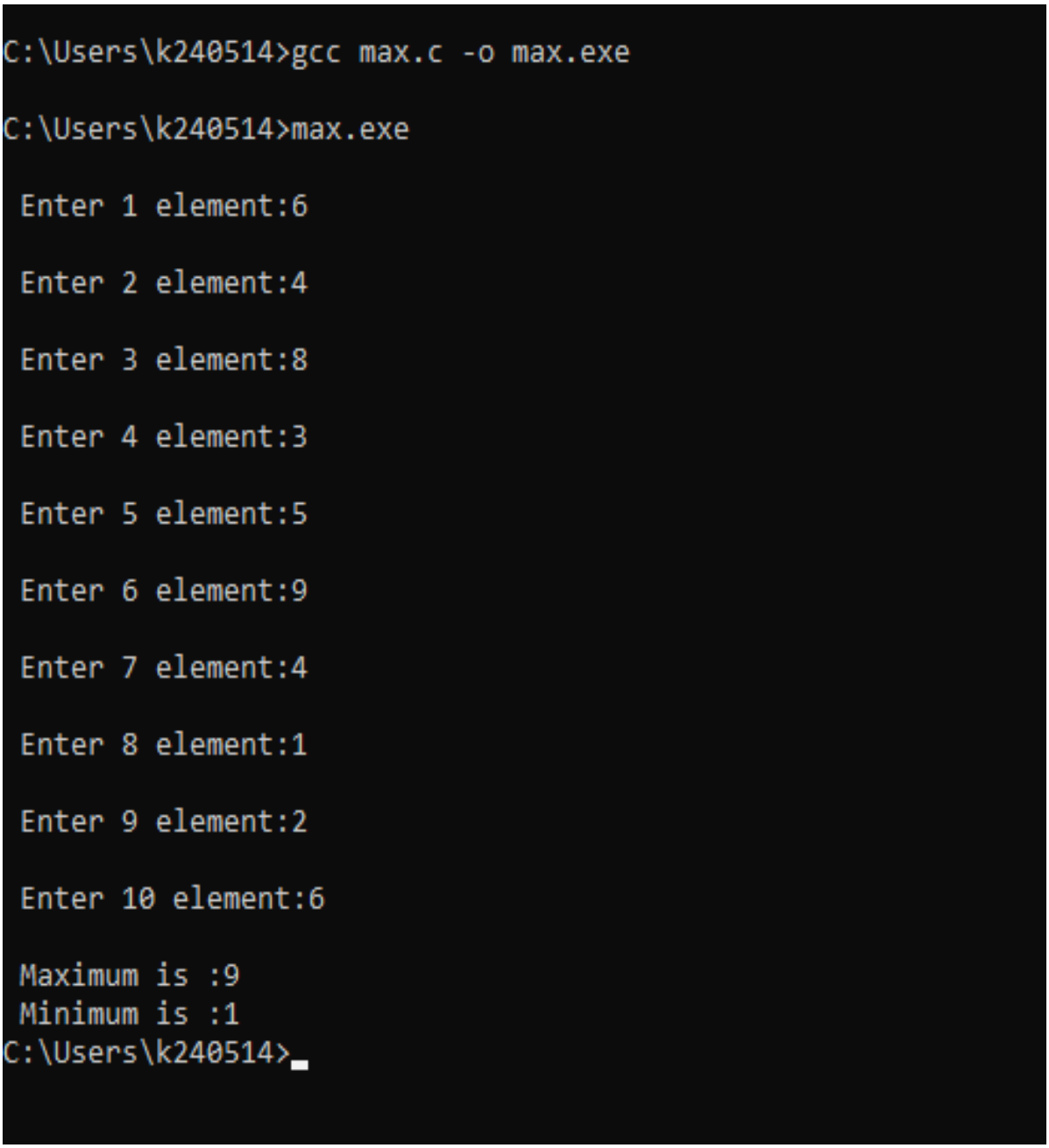
```
 Enter a word: good
doog
--------------------------------
Process exited after 2.519 seconds with return value 0
Press any key to continue . . .
```

QUESTION 10:

Create a function that returns the maximum and minimum element in an integer array. Use this function in the main program to find the maximum and minimum from an array entered by then user.

```c
#include <stdio.h>

void function(int array[10],int max,int min)
{
  for(int i=0;i<10;i++)
  {
      printf("\n Enter %d element:",i+1);
      scanf("%d",&array[i]);
      if(array[i]>max)
      {
          max=array[i];
      }
      if(array[i]<min)
      {
          min=array[i];
      }
}
printf("\n Maximum is :%d",max);
  printf("\n Minimum is :%d",min);
}
int main()
{
  int array[10];
  int max=0,min=100000000;
  function(array,max,min);
    return 0;
}
```

OUTPUT:


C:\Users\k240514>gcc max.c -o max.exe
C:\Users\k240514>max.exe
Enter 1 element:6
Enter 2 element:4
Enter 3 element:8
Enter 4 element:3
Enter 5 element:5
Enter 6 element:9
Enter 7 element:4
Enter 8 element:1
Enter 9 element:2
Enter 10 element:6
Maximum is :9
Minimum is :1
C:\Users\k240514>