Chapter -04

Programming Excercise

4.1 Given the string "WORDPROCESSING", write a program to read the string from the terminal and display the terminal and display the same in the following formats.

Answer:

```
#include <stdio.h>
# include <Math.h>
int main()
{
Char Str1[10] = "WORD"
Char Str2[10] = "PROCESSING"
printf("%s", Str1);
printf("%s\n", Str2);
printf("%s\n", Str1);
printf("%s\n", Str2);
printf("%.1s", Str1);
printf("%.1s", Str2);
return 0;
}
```

Output:

```
WORD PROCESSING
WORD
PROCESSING
W.P.
```

4.2 Write a program to read the values of x and y and print the results of the following expression in one line.

a) $\frac{x+y}{x-y}$ b) $\frac{x+y}{2}$ c) $(x+y)(x-y)$

Answer:

```
#include <stdio.h>
# include <conio.h>
# include <math.h>
int main()
{
 float x,y,a,b,c
 printf("Enter x \n");
 Scanf ("Enter y \n"); ("%f", &a);
 Printf ("Enter y \n");
 Scanf ("%f", &y);
 a = ((x+y)/(x-y));
 b = (x+y)/2;
 c = (x+y) * (x-y)
 printf ("%f %f %f", a,b,c);
 return 0;
}
```

Output:

Enter x 5

Enter y 3

4.000000 4.000000 16.000000

[4.3] Write a program to read the following numbers, round them off to the nearest integers and print out the results in integer form.

Answer:

```
#include <stdio.h>
# include <conio.h>
# include <math.h>
int main()
{ int x, y, z;
  float a, b, c;
  printf("Enter three value: a, b, c: \n");
  scanf("%f %f %f", &a, &b, &c);
  x = ceil(a);
  y = ceil(b);
  z = ceil(c);
```

```
printf ("Values are : \n");
printf ("%d", x);
printf ("%d", y);
printf ("%d", z);
return 0;
}
```

Output:

```
Enter three value a, b, c
    76.34  24.56  12.90
Values are : 70  25  13
```

4.4 Write a program that reads 4 floating point values in the range of 0.0 to 20.0 and prints a horizontal bar chart to represent these values using the character * as the bill char. For the purpose of chart, the values may be rounded off to the nearest integer for ex.

```
****
****   4.36
****
```

```
#include <stdio.h>
#include <math.h>
int main() {
```

```
float a=0, nf[3];
int i=0, ni[3];
while (i<4){
Printf ("Enter a number:");
Scanf ("%f", &a);
if (a>=0 && a<=20.00){
nf [i] = a;
ni [i] = foor(a);
i++ ;}
else {
printf ("A Should be in between 0 to 20.00\n\n");}
for (i=0; i<4; i++){
while (ni [i]-->0)
print f("*\t");
printf ("%2f \n", nf([i]);
}
```

9.5 Write an interactive program to demonstrate the process of multiplication. The program should ask the user to enter two digits integers and print the product of integers as shown below.

Answer:

```
#include <stdio.h>
#include <conio.h>
#include <math.h>
int main()
{ int a,b,x,y,t,n,w;
  printf ("Enter value of a");
  Scanf ("%d", &a);
  printf ("Enter value of b");
  Scanf ("%d", &b);
  x = b%10;
  y = b/10;
  t = x*a;
  n = y*a;
  w = t+(n*10);
printf ("\n %d", w);
```

```
printf ("\n  * %d", b);
printf ("      ----\n");
printf ("%d X %d is ", x, a);
printf ("      %d ", t);
printf ("%d X % is; y, a);
printf ("%d \n", n);
printf ("      -----\n");
printf ("ADD THEM  - %d\n ", w);
printf ("------");
return 0;
}
```

Output :

```
Enter value of a 56
Enter value of b 65

        56
    *   65
    ------
5X56 is 280
6X56 is 336
-----------
ADD THEM 3640
```

4.6 Write a program to read three integers from the keyboard using one scanf statement and output them on one line using.

Answer:

```
#include <stdio.h>
int main ()
{ int x, y, z;
printf ("Enter three values\n");
Scanf ("%d %d %d", &x, &y, &z);
printf ("x=%d");
printf ("y=%d", y);
printf ("z=%d", z);
printf ("x=%d y=%d z=%d\n", x, y, z);
printf ("x=%d y=%d z=%d\n", x, y, z);
return 0;
}
```

Output: Enter three values,

2 34

x=2 y=3 z=4

x=2 y=3 z=4

x=2 y=3 z=4

4.7 Writes a program that prints the value 10.45678 in exponential format with the following specification.

Answer:

```
#include <stdio.h>
int main()
{
  float Num = 10.45678;
  printf("exponential format with correct to two
          decimal places: %.2e\n", Num);
  printf("exponential format with correct
          four places: %.4e\n", Num);
  printf("exponential format with correct
          eight decimal places :%.8e\n", Num);
  return 0;
}
```

Output:

```
exponential format with correct to two decimal
  places  : 1.05e+001
exponential format with correct to four decimal
  places: 1.0457e+001
exponential format with correct to eight
  decimal: 1.04567804e+001
```

4.8 write a program to print the value 345.6789 in pixed point format with following Specification:

a) Correct to two decimal places;

b) Correct to five decimal places and

c) Correct to zero decimal places.

Answer:

```
#include <stdio.h>
int main ()
{ float Num = 345.6789;
printf ("Fixed point format (Correct to two decimal places): %.2f\n
printf (" Fixed point format (correct to five decimal places): %.5f\n, Nu
printf (" Fixed point format (correct to zero decimal places): %f \n; Num
return 0;
}
```

Output:

fixed point format (correct to two decimal places): 345.68

fixed point format (correct to five decimal places): 345.67889

fixed point format (correct to zero decimal places):

345.678894

4.9 write a program to read the name ANIL KUMAR GUPTA in three parts using the scanf statement and to display the same in the same using printf statement.

a) ANIL K. GUPTA

b) A.K. GUPTA.

c) GUPTA A.K.

Answer:

```
#include <stdio.h>
int main()
{
char str1[10] = "ANIL";
char str2[10] = "KUMAR";
char str3[10] = "GUPTA";
printf("%s %.1s %s\n", str1, str2, str3);
printf("%s%.1s %s\n", str1, str2, str3);
printf("%s %.1s %.1s\n", str3, str1, str2);
return 0;
}
```

Output:

```
ANIL K. GUPTA
A.K. GUPTA
GUPTA A.K.
```

4.10 write a program to read and display the following table of data.

Name	code	Price
Fan	67831	1234.50
Motor	450	5786.70

Answer:

```
#include <stdio.h>
int main()
{ char Name1 [10], Name2 [10];
  int code1, code2;
  float price1, price2;
  printf ("Enter Name, code and price \n");
  scanf ("%s %d %f", &Name1, &code1, &price1);
  printf ("Enter Name, code and price \n");
  scanf ("%s %d %f", &Name2, &code2, &price2);
  printf ("Name code price \n");
  Printf ("%-7s . %-8d %8.2f \n", Name1, code1, price1);
  printf ("%-7s %-8d %.2f \n", Name2, code2, price2);
  return 0;
}
```

Output:

```
Name    code    price
Fan     67831   1234.00
Motor   450     576.00
```