*******BASIC PROGRAMMING EXERCISES :

1.
```c
#include <stdio.h>
int main()
{
    int intVal;
    unsigned int uIntVal;
    long longVal;
    unsigned long uLongVal;
    long long longLongVal;
    short shortVal;
    unsigned short uShortVal;
    unsigned long long uLongLongVal;
    char charVal;
    unsigned char uCharVal;
    float floatVal;
    double doubleVal;
    long double longDoubleVal;
    printf("Enter a character: ");
    charVal = getchar();
    getchar();
    printf("Enter another character: ");
    uCharVal = getchar();
    getchar();
    printf("Enter a signed short value: ");
    scanf("%hi", &shortVal);
    printf("Enter an unsigned short value: ");
    scanf("%hu", &uShortVal);
    printf("Enter an signed integer value: ");
    scanf("%d", &intVal);
    printf("Enter an unsigned integer value: ");
    scanf("%lu", &uIntVal);
    printf("Enter a signed long value: ");
    scanf("%ld", &longVal);
    printf("Enter an unsigned long value: ");
    scanf("%lu", &uLongVal);
    printf("Enter a signed long long value: ");
    scanf("%lld", &longLongVal);
    printf("Enter an unsigned long long value: ");
    scanf("%llu", &uLongLongVal);
    printf("Enter a float value: ");
    scanf("%f", &floatVal);
    printf("Enter a double value: ");
    scanf("%lf", &doubleVal);
    printf("Enter a long double value: ");
    scanf("%Lf", &longDoubleVal);
    printf("\nYou entered character: '%c' \n",
charVal);
    printf("You entered unsigned character: '%c'
\n\n", uCharVal);
```

2.
```c
#include<stdio.h>
int main()
{
    double a,b,sum;
    printf("Enter two value :   ");
    scanf("%lf %lf",&a,&b);
    sum=a+b;
    printf("%lf + %lf = %lf\n",a,b,sum);
    return 0;
}
```

3.
```c
#include <stdio.h>

int main()
{
    int num1, num2;
    int sum, sub, mult, mod;
    float div;
    printf("Enter any two numbers: ");
    scanf("%d%d", &num1, &num2);
    sum = num1 + num2;
    sub = num1 - num2;
    mult = num1 * num2;
    div = (float)num1 / num2;
    mod = num1 % num2;
    printf("SUM = %d\n", sum);
    printf("DIFFERENCE = %d\n", sub);
    printf("PRODUCT = %d\n", mult);
    printf("QUOTIENT = %f\n", div);
    printf("MODULUS = %d", mod);
return 0;
}
```

``c
    printf("You entered signed short: %hi \n",
shortVal);
    printf("You entered unsigned short: %hu
\n\n", uShortVal);
    printf("You entered signed int: %d \n",
intVal);
    printf("You entered unsigned int: %lu \n\n",
uIntVal);
    printf("You entered signed long: %ld \n",
longVal);
    printf("You entered unsigned long: %lu \n\n",
uLongVal);
    printf("You entered signed long long: %lld
\n", longLongVal);
    printf("You entered unsigned long long: %llu
\n\n", uLongLongVal);
    printf("You entered float: %f \n", floatVal);
    printf("You entered double: %lf \n",
doubleVal);
    printf("You entered long double: %Lf \n",
longDoubleVal);
return 0;
}
``	

3.	```c
	4. #include<stdio.h>
	int main()
	{
	  double a,b;
	  printf("Enter length and breadth : ");
	  scanf("%lf %lf",&a,&b);
	  printf("LENGTH IS = %lf\n",a);
	  printf("BREADTH IS = %lf\n",b);
	  return 0;
	}
	``

```c
5. #include<stdio.h>
int main()
{
   double a,b,area;
   printf("Enter length and breadth :  ");
   scanf("%lf %lf",&a,&b);
  area = a*b;
  printf("THE AREA IS = %lf\n",area);
   return 0;
}
```

```c
6.
#include<stdio.h>
int main()
{
   double r,dia,circum,area;
   printf("Enter length and breadth :  ");
   scanf("%lf",&r);
  dia=2*r;
  circum=2*3.1416*r;
  area=3.1416*r*r;
  printf("DIAMETER = %lf\n",dia);
  printf("CIRCUMFERENCE = %lf\n",circum);
  printf("AREA = %lf\n",area);
   return 0;
}
```

7.
``c
#include<stdio.h>
int main()
{
    double cm,m,k;
    printf("Enter the value : ");
    scanf("%lf",&cm);
    m=cm/100;
    k=m/1000;
    printf("%lf cm = %lf m\n",cm,m);
    printf("%lf cm = %lf km\n",cm,k);
    return 0;
}
``
	8.
	``c
	#include<stdio.h>
	int main()
	{
	    double c,f;
	    printf("Enter the value : ");
	    scanf("%lf",&c);
	    f=((c/5)*9)+32;
	    printf("%lf degree Celsius = %lf degree
	Farenheit\n",c,f);
	    return 0;
	}
	``

9.
``c
#include<stdio.h>
int main()
{
    double c,f;
    printf("Enter the value : ");
    scanf("%lf",&f);
  c=((f-32)/9)*5;
    printf("%lf degree Farenheit = %lf degree
Celsius\n",f,c);
    return 0;
}
``
	10.
	``c
	#include<stdio.h>
	int main()
	{
	    int days,years,weeks,edays,a,b;
	    printf("Enter days value : ");
	    scanf("%d",&days);
	    years=days/365;
	    a=days%365;
	    weeks=a/7;
	    b=a%7;
	    edays=b;
	    printf("%d Days = %d Years %d Weeks %d
	Days\n",days,years,weeks,edays);
	    return 0;
	}
	``

11.
``c
#include<stdio.h>
#include<math.h>
int main()
{
    double x,y,r;
    printf("Enter 2 value : ");
    scanf("%lf %lf",&x,&y);
    r=pow((x),y);
    printf("(%lf)^(%lf) = %lf\n",x,y,r);
    return 0;
    }
``
	12.
	``c
	#include<stdio.h>
	#include<math.h>
	int main()
	{
	    double x,y;
	    printf("Enter 2 value : ");
	    scanf("%lf",&x);
	    y=sqrt(x);
	    printf("sqare root %lf = %lf\n",x,y);
	    return 0;
	    }.
	``

13.
``c
#include<stdio.h>
#include<math.h>
int main()
{
    double x,y,z;
    printf("Enter 2 angles of triangle : ");
    scanf("%lf %lf",&x, &y);
    z=180-(x+y);
    printf("Third angle is = %lf degree\n",z);
    return 0;
}
``
	14.
	``c
	#include<stdio.h>
	#include<math.h>
	int main()
	{
	    double x,y,area;
	    printf("Enter base and height of triangle : ");
	    scanf("%lf %lf", &x, &y);
	    area=0.5*x*y;
	    printf("Area is = %lf\n",area);
	    return 0;
	}
	``

15.
``c
#include <stdio.h>
#include <math.h> // Used for sqrt() function
 	
int main()
{
    float side, area;
    printf("Enter side of an equilateral triangle: ");
    scanf("%f", &side);
    area = (sqrt(3) / 4) * (side * side);
    printf("Area of equilateral triangle = %.2f sq. units", area);
    return 0;
}
``
	16.
	``c
	#include<stdio.h>
	#include<math.h>
	int main()
	{
	    double a,b,c,d,e,total,avg,per;
	    printf("Enter 5 marks : ");
	    scanf("%lf %lf %lf %lf %lf",&a,&b,&c,&d,&e);
	    total=a+b+c+d+e;
	    avg=total/5;
	    per=avg;
	    printf("Total = %lf Avarage = %lf Percentage = %lf ",total,avg,per);
	    return 0;
	}
	``

17.
``c
#include <stdio.h>
int main()
{
    float principle, time, rate, SI;
    printf("Enter principle (amount): ");
    scanf("%f", &principle);
printf("Enter time: ");
    scanf("%f", &time);
printf("Enter rate: ");
    scanf("%f", &rate);
    SI = (principle * time * rate) / 100;
    printf("Simple Interest = %f", SI);
return 0;
}
``
	18.
	``c
	#include <stdio.h>
	#include <math.h>
	int main()
	{
	    float principle, rate, time, CI;
	    printf("Enter principle (amount): ");
	    scanf("%f", &principle);
	    printf("Enter time: ");
	    scanf("%f", &time);
	    printf("Enter rate: ");
	    scanf("%f", &rate);
	    CI = principle* (pow((1 + rate / 100), time));
	    printf("Compound Interest = %f", CI);
	    return 0;
	}
	``