Enrollment no : Guest600

Introduction to C programming, Operators and I/O Functions

Practical No: 1 **Date: 7/12/2020**

Aim: Introduction to C Programming, variables, data types, Operators and data input/output functions in C.

Exercises:

Exercise 1: Write a program to that performs as calculator (addition, multiplication, division, subtraction).

Solution:

```
#include <stdio.h>
#include <math.h>
int main()
{
  int A, B, sum, sub, multiplication, division;
      printf ("Enter two numbers: ");
      scanf("%d %d",&A,&B);
         sum = A+B;
         printf("The sum of two numbers is:%d", sum);

         sub = A-B;
         printf("\nThe subtraction of two numbers is:%d", sub);

         multiplication = A*B;
         printf("\nThe product of two numbers is:%d", multiplication);

         division = A/B;
         printf("\nThe quotient of two numbers is:%d", division);
return 0;
}
```

Output :

```
Enter two numbers: 3
3
The sum of two numbers is:6
The subtraction of two numbers is:0
The product of two numbers is:9
The quotient of two numbers is:1

...Program finished with exit code 0
Press ENTER to exit console.
```

Exercise 2: Write a program to find area of triangle (a=h*b*.5) a = area h = height b = base.

Solution:

```
#include <stdio.h>
#include <math.h>
int main()
    {
        float base, height, area;
        printf("Enter base of the triangle: ");

            scanf("%f", &base);
            printf("Enter height of the triangle: ");

            scanf("%f", &height);
            area = base * height * 0.5;

        printf("Area of the triangle = %f units", area);
        return 0;
}
```

Output:

```
Enter base of the triangle: 20
Enter height of the triangle: 25
Area of the triangle = 250.000000 units

...Program finished with exit code 0
Press ENTER to exit console.
```

Exercise 3: Write a program to calculate simple interest (i = (p*r*n)/100) i = Simple interest p =
Principal amount r = Rate of interest n = Number of years.

Solution:

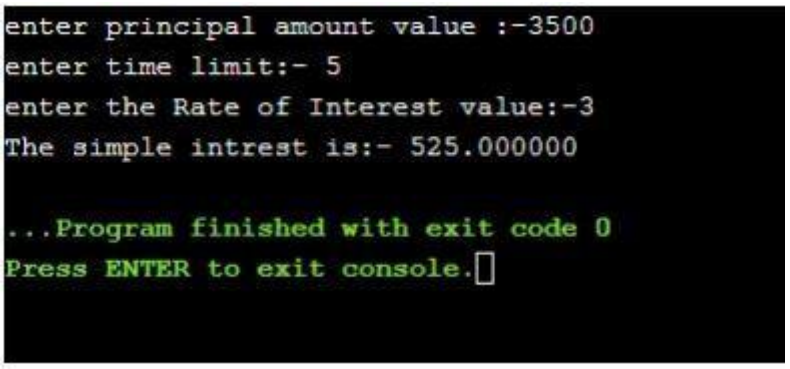
```
#include  <stdio.h>
#include <conio.h>
#include  <math.h>
int main()
        {
            float si,p,t,r;
               printf("enter principal amount value);
               scanf("%f",&p);

               printf("enter time limit:- ");
               scanf("%f",&t);

                printf("enter the Rate of Interest value:-");
                scanf("%f",&r);

           si=(p*t*r)/100;
           printf("The simple intrest is:- %f",si);
        return 0;
        }
```

Output:



Exercise 4: Write a C program to enter a distance into kilometers and convert it in to meter, feet,
inches and centimeters.

Solution:

```
#include<stdio.h>
#include<conio.h>
void main ()
  {
      float km,m,feet,inch,cm;
          printf("Enter the distance in kilometres - ");
          scanf("%f",&km);

              m = km*1000;
              feet= km*3280.84;
              inch=km*39370.1;
              cm=km*100000;

        printf("\nDistance in kilometres = %f ",km);
        printf("\nDistance in metres = %f ",m);
        printf("\nDistance in feet = %f ",feet);
        printf("\nDistance in inches = %f ",inch);
        printf("\nDistance in centimetres = %f ",cm);

 getch();
}
```

Output

```
Enter the distance in kilometres - 20

Distance in kilometres = 20.000000
Distance in metres = 20000.000000
Distance in feet = 65616.796875
Distance in inches = 787402.000000
Distance in centimetres = 2000000.000000

...Program finished with exit code 255
Press ENTER to exit console.
```

Exercise 5: Write a program to compute Fahrenheit from centigrade (f=1.8*c +32).

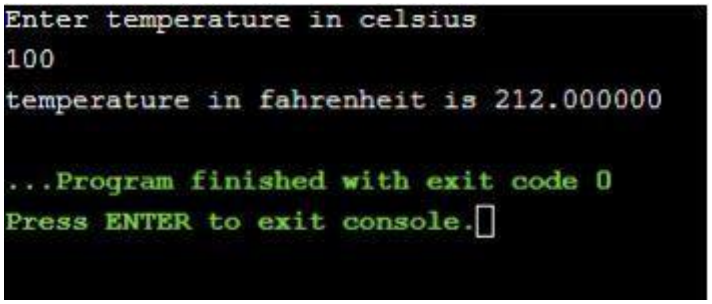
Solution:

```
#include <stdio.h>
#include <math.h>
int main()
   {
        float fahrenheit,celsius;
            printf("Enter temperature in celsius \n");
            scanf("%f",celsius);

                    fahrenheit=(celsius*1.8)+32;

            printf("temperature in fahrenheit is %f",fahrenheit);
      return 0;
}
```

Output



Exercise 6: Write a C program to interchange two numbers.

Solution:

```
#include <stdio.h>
#include <math.h>
int main()
    {
        float s,n,temp;
            printf("Enter first number: \n");
            scanf("%f",&s);

            printf("Enter second number:\n");
            scanf("%f",&n);

                temp=s;
                s=n;
                n=temp;

      printf("After swapping the first number = %f",s);
     printf("\nAfter swapping the second number =%f",n);
     return 0;
    }
```

Output:

```
Enter first number:
26
Enter second number:
29
After swapping the first number = 29.000000
After swapping the second number =26.000000

...Program finished with exit code 0
Press ENTER to exit console.
```

Review Questions:

1. A printf statement can generate only one line of output.(State True/ False. If false than
correct it.)
True.

2. Why header files are included in the C program?
Ans) A Header file is a collection of built-in(readymade) functions, which we can directly use in our program.Header files contain definitions of the functions which can be incorporated intoany C
program by using pre-processor.

3. Distinguish between: void main() and int main().
For int main(),the return type of the function is "int", i.e. it is supposed to return an integer value;
Ans) For void main(),the return type of the function "main" is void, i.e. it does not return anything.

4. What are the ways to assign values to the variables?
Ans) There's only one way to assign value to variable,we use '=' as assignment function in C.

5. Write significance of printf & scanf function with syntax.
Ans) Scanf("%d",&a); is used to input values from user & printf("number is %d") is used to show
output.

6. Which header file is required to use printf & scanf function?
Ans) stdio.h(by using #include<stdio.h > statement)

7. ANSI C treats the variables name and Name to be same.(State True/False. If false than correct
it.)
Ans) False.
C is case sansetive.so it treats name and Name as two different variables.

8. Character constants are coded using double quotes. (State True/ False. If false than correct it.)
Ans) False. Character constants are coded using single quotes

10. Give the output for following

Ans) a. printf("%d", 10<<2); c. printf("%d",10||2); d. printf("%d",10>>2);
b. printf("%d",10%4); e. printf("%d",10&&2);
a.40 b.2 c.1 d.2 e.1

11. What is the result of expression 5 % 3 * 3 + 10 / 3 ?

Ans) 9

12. The modulus operator % can be used only with integers. (State True/ False. If false than correct it.)

Ans) True

13. The expression !(x<=y) is same as the expression x>y. (State True/ False. If false than correct it.)

Ans) True

14. Give the output of the following code:-

Ans) int a=2, b=3, c=1, d, e;

```
d = a++ + ++b + ++c + ++a;
e = --c + --a + a++ + d--;
printf("%d %d %d %d %d", a,b,c,d,e);
```