Fundamentals of C Programming 23CS002

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PROGRAM-1

Title of program : Write a program to show the use to input (Scanf)/output(Printf) statement and block structure of C-program by highlighting the features of "stdio.h".

Solution:

```
#include<stdio.h>
int main(){
int a;
printf("Enter any number :- "); scanf("%d",&a);
printf("Number entered by user is :- %d",a);
printf("\nNavjinder Singh\nG22\n2310991996");
return 0;
}
```
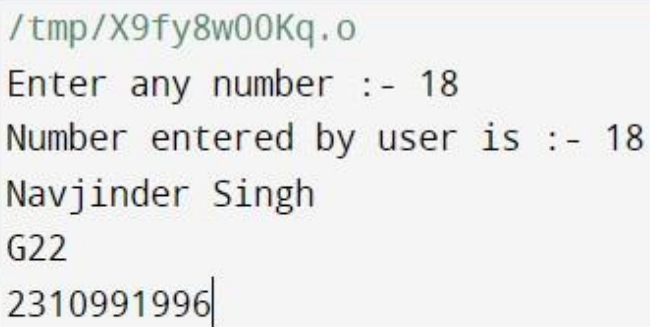
Output:

```
/tmp/X9fy8w00Kq.o
Enter any number :- 18
Number entered by user is :- 18
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2310991996
```

PROGRAM-2

Title of program : Write a program to add two numbers and display the sum.

Solution:

```c
#include<stdio.h>
int main(){
int a,b;
printf("Enter any value of a & b respectively :- ");
scanf("%d%d",&a,&b);
printf("Sum of given 2 numbers is :- %d",a+b);
printf("\nNavjinder Singh\nG22\n2310991996");
return 0
}
```

Output:

```
/tmp/X9fy8w00Kq.o
Enter any value of a & b respectively :-7 77
Sum of given 2 Numbers is:-0,a=b
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```

PROGRAM-3

Title of program : Write a program to calculate the area and the circumference of a circle by using radius as the input provided by the user.

Solution:

```c
#include<stdio.h>
int main(){
int r;
float area, circum;
printf("Enter the valur of radius :- ");
scanf("%d", &r);
area = 3.14*r*r;
circum = 2*3.14*r;
printf("\nArea of circle is :- %.2f", area);
printf("\nCircumference of circle is :- %.2f",circum);
printf("\nNavjinder Singh\nG22\n2310991996");
return 0;
}
```

Output:

```
/tmp/X9fy8w00Kq.o
Enter the valur of radius :- 5
Area of circle is :- 78.50
Circumference of circle is :- 31.40
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```

PROGRAM-4

Title of program : Write a program to perform the addition, subtraction, division and multiplication of tywo numbers given as input by the user.

Solution:

```c
#include<stdio.h>
int main(){
int a,b;
printf("Enter 2 numbers a and b respectively :-- ");
scanf("%d%d",&a,&b);
printf("\nAddition of given 2 numbers is :- %d",a+b);
printf("\nSubtraction of given 2 numbers is :- %d",a-b);
printf("\nMultiplication of given 2 numbers is :- %d",a*b);
printf("\nDivision of given 2 numbers is :- %d",a/b);
printf("\nNavjinder Singh\nG22\n2310991996");
return 0;
}
```

Output:

```
/tmp/X9fy8w00Kq.o
Enter 2 numbers a and b respectively :-- 7 49
Addition of given 2 numbers is :- 56
Subtraction of given 2 numbers is :- -42
Multiplication of given 2 numbers is :- 343
Division of given 2 numbers is :- 0
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```

PROGRAM-5

Title of program : Write a program to evaluate each of the following equations. (i)V = u + at. (ii) S = ut+1/2at^2 (iii) T=2*a+√b+9c (iv) H=√b^2 +p^2

Solution:

#include<stdio.h>

#include<math.h>

int main(){

float u,a,t,b,c,p,V,S,T,H;

printf("Enter the value of u :- ");

scanf("%f",&u);

printf("Enter the value of a :- ");

scanf("%f",&a);

printf("Enter the value of t :- ");

scanf("%f",&t);

printf("Enter the value of b :- ");

scanf("%f",&b);

printf("Enter the value of c :- ");

scanf("%f",&c);

printf("Enter the value of p :- ");

scanf("%f",&p);

V = u + a*t;

S = u*t + 0.5*a*(t*t);

T = 2*a + sqrt(b+9*c);

H = sqrt((b*b)+(p*p));

printf("\nResult of V is :- %.2f\n",V);

printf("Result of S is :- %.2f\n",S);

printf("Result of T is :- %.2f\n",T);

printf("Result of H is :- %.2f\n",H);

printf("\nNavjinder Singh\nG22\n2310991996");

return 0;

}

Output:

```
/tmp/4kGJy4h0ak.o
Enter the value of u :- 3
Enter the value of a :- 4
Enter the value of t :- 5
Enter the value of b :- 2
Enter the value of c :- 6
Enter the value of p :- 5
Result of V is :- 23.00
Result of S is :- 65.00
Result of T is :- 15.48
Result of H is :- 5.39

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```

PROGRAM-6

Title of program : Write a program to swap two variable.

a) By using temporary variables.

b) Without using temporary variables.

<u>Solution:</u>

```c
#include<stdio.h>
int main(){
// (a) Using temporary variable
int a=2, b=3,c;
printf("Before Swapping a=%d, b=%d",a,b);
c=a;
a=b;
b=c;
printf("\nAfter swapping a=%d,b=%d",a,b);
// (B) Without using temporary variable
int x, y, z;
printf("\nEnter the values os x and y respectively :- ");
scanf("%d%d",&x,&y);
printf("Before Swapping x=%d, y=%d\n",x,y);
z=x;
x=y;
y=z;
printf("After Swapping x=%d, y=%d",x,y);
printf("\nNavjinder Singh\nG22\n2310991996");
return 0;
}
```

Output:

```
/tmp/4kGJy4h0ak.o
Before Swapping a=2, b=3
After swapping a=3,b=2
Enter the values os x and y respectively :- 5 6
Before Swapping x=5, y=6
After Swapping x=6, y=5
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```

PROGRAM-7

Title of program : Write a Program to find the greatest among three numbers using:
(a) Conditional Operator
(b) If-Else statement

Solution:

```c
#include<stdio.h>
int main(){
int a,b,c;
printf("Enter 1st 2nd and 3rd number respectively :- ");
scanf("%d%d%d",&a,&b,&c);
if(a>b && a>c){
printf("%d is greatest among %d and %d", a,b,c);
}else if(b>a && b>c){
printf("%d is greatest among %d and %d",b,a,c);
}else{
printf("%d is greatest among %d and %d",c,a,b);
}
printf("\nNavjinder Singh\nG22\n2310991996");
return 0;
}
```

Output:

```
/tmp/4kGJy4h0ak.o
Enter 1st 2nd and 3rd number respectively :- 1 2 5
5 is greatest among 1 and 2
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```

PROGRAM-8

Title of program: Write the following programs using switch case statement:

(a) To check that an input alphabet is vowel or consonant.

(b) To check whether a number is positive, negative or zero.

Solution:

```c
#include <stdio.h>
int main() {
char ch;
printf("Enter an alphabet: ");
scanf(" %c", &ch);
switch(ch) {
case 'a':
case 'e':
case 'i':
case 'o':
case 'u':
case 'A':
case 'E':
case 'I':
case 'O':
case 'U':
printf("%c is a vowel.\n", ch);
break;
default:
printf("%c is a consonant.\n", ch);
}
printf("\nNavjinder Singh\nG22\n2310991996");
return 0;
}--
```

Output:

```
/tmp/4kGJy4h0ak.o
Enter an alphabet: e
e is a vowel.

Navjinder Singh
G22
2310991996z
```