Day :3

Question1 :Write a program that declares an integer variable, initializes it with a value of 42, and prints the value to the console.

```
#include<stdio.h>
int main(){
int n =42;
printf("the value of n is %d",n);
return 0;
}
```

OUTPUT

—----------

The value of n is 42

Question 2: Create a program that swaps the values of two integer variables without using a temporary variable. Demonstrate this by printing the values before and after the swap.

```
#include<stdio.h>
int main(){
    int n =42,v=33;
    printf("the value  n: %d v: %d\n ",n,v);
    n = n + v;
    v = n-v;
    n = n - v;
    printf("after swapping the value  n: %d  v:%d ",n,v);

return 0;
}
```

OUTPUT

The value n:42 v:33

After swapping the value n:33 v:42

Question 3: Write a program that prompts the user to enter their name and age, stores these values in appropriate variables, and then prints a greeting message that includes both the name and age.

```
#include<stdio.h>

int main() {
    char name[20];
    int age;
    printf("Enter your name: ");
    scanf("%s", name);
    printf("Enter your age: ");
    scanf("%d", &age);
    printf("hi %s, you are %d years old.\n", name, age);

    return 0;
}
```

OUTPUT

—----------

```
Enter your name :anusree
Enter your age:22
hi anusree you are 22 years old.
```

Question 4: Write a program that declares an integer variable, assigns it a value of 10, and then converts it to a float variable. Print both the integer and float values to show the conversion.

```
#include<stdio.h>
int main(){
    int n =10;
    float w =n;
    printf("the value of n is %d\n",n);
    printf("the value of w is %f\n",w);

}
```

OUTPUT

—----------

```
the value of n is 10
the value of w is 10.0000
```

Question 5: Using #define, create a constant for the value of Pi (3.14). Write a program that calculates the area of a circle given its radius (stored in a variable) and prints the result using the constant for Pi.

```
#include<stdio.h>
#define pi 3.14
int main(){
   float area;
   float radius=4;
   area= pi * radius * radius;
   printf("area is :%f",area);
   return 0;
}
```

OUTPUT

—----------

area is 50.240002

Question 6: Write a program that demonstrates the concept of variable scope by declaring a global variable and modifying it within a function. Print the value of the global variable before and after modification.

```
#include <stdio.h>
int value = 10;
void updated() {
   value = value + 5;
   printf(" after updating: %d\n", value);
}
int main() {
   printf("Before updating : %d\n", value);
      updated();

   return 0;
}
```

OUTPUT

—----------

Before updating : 10

after updating: 15

Question 7: Write a program that uses augmented assignment operators (+=, -=, *=, /=) to perform calculations on an integer variable initialized to 100. Print the value after each operation.

```
#include<stdio.h>
int main(){
int n=100,v;
 v= n + 2;
 printf(" the value is n: %d\n",v);
  v= n - 2;
 printf(" the value is n: %d\n",v);
  v= n * 2;
 printf(" the value is n: %d\n",v);
  v= n / 2;
 printf(" the value is n: %d\n",v);
    return 0;
}
```

OUTPUT

—----------

```
 the value is n: 102
 the value is n: 98
 the value is n: 200
 the value is n: 50
```

Question 8: Create an array of integers with five elements. Initialize it with values of your choice, then write a program to calculate and print the sum of all elements in the array.

```
#include<stdio.h>
int main(){
    int arr[5]={1,2,3,4,5};
    int sum =0;
    for(int i =0;i<5;i++)
    {
        sum = sum + arr[i];
    }
    printf("the sum is %d",sum);
    return 0;
}
```

OUTPUT
—----------

the sum is 15

Question 9: Create a C program that prompts the user for a username and password, then checks if the entered credentials match predefined values. Use logical operators to determine if the authentication is successful.

```
#include <stdio.h>
#include <string.h>
#define user "anusree"
#define password "anusree123"

int main() {
    char name[50];
    char Passwords[50];

    printf("Enter the username: ");
    scanf("%s", name);
    printf("Enter the password: ");
    scanf("%s", Passwords);

    if (strlen(name) == 0 && strlen(Passwords) == 0) {
        printf("Error: Username and password cannot be empty.\n");

    }
    if (strcmp(name, user) != 0 || strcmp(Passwords, password) != 0) {
        printf("Error: One of the username or password is incorrect.\n");
        }
        else{
            printf("Authentication success %s" ,name);
        }


    return 0;
}
```

OUTPUT
—----------
Enter the username: anusree
Enter the password: anusree123
Authentication success anusree

CLASS WORKS
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Data Types

```
#include<stdio.h>
int main(){
   unsigned int a=50;

   printf("001a = %u \n",a);
   a = -50;
   printf("002a = %u \n",a);

   return 0;
}
```

OUTPUT
—----------

001a = 50
002a = 4294967246

Problem 2:

```
#include<stdio.h>
int main()
{
   unsigned char A = 290;


   printf("%u",A);
   return 0;
}
```

OUTPUT
—---------
34

Problem 3

```
#include<stdio.h>
int main(){
   unsigned char AB =40;
   unsigned char BC =160;
   unsigned char AC = AB + BC;
   printf("%d",AC);
}
```

OUTPUT
—--------
200

Problem 4

```
#include<stdio.h>
int main(){
   char A = 'h';

   char b = 20;
   printf("%d\n",A);
   printf("%c\n",A);
   printf("%d\n",b);



}
```

OUTPUT
—--------
104
h
20

Arithemetic Operations

Problem 5

```
#include<stdio.h>
int main(){
   int a = 5,b =10,c =15;
   int result = a + b * c / b -a;
   printf("result %d\n",result);
}
```

OUTPUT

—--------

result 15

Problem 6

```
#include<stdio.h>
int main(){
   int x = 2;
   int y = ++x + x++ + --x;
   printf("result y: %d\n",y);
}
```

OUTPUT

—--------

result y: 10

Problem 7

```
#include<stdio.h>
int main(){
   int x = 40;
   int y = 30;
   printf("result : %d\n",x&y);
   printf("result : %d\n",x&&y);

}
```

OUTPUT

—--------

result : 8

result : 1

Problem 8
Check wheather the number is odd or even using Bitwise operator

```
#include<stdio.h>
int main()
{
   int n;
   printf("Enter the number: ");
   scanf("%d", &n);
   if (n & 1) {
      printf(" number is an odd number.\n");
   } else {
      printf(" number is an even number.\n");
   }
   return 0;
}
```

OUTPUT
—--------

```
Enter the number: 4
number is an even number.
```

Problem 9

```
#include<stdio.h>
int sum(int,int);
int main()
{
   int x=2;
   int y = 3;
   int v = sum(2,3);
   printf("%d",v);
   return 0;
}
int sum(int c,int d){
   static int sum = 0;
   sum = c + d;
   return sum;
}
```

OUTPUT
—--------

5

Problem 10
Variable scopes

```
#include<stdio.h>
void fun(void);
int main(){

fun();
fun();
fun();
fun();

}
void fun(){
   static int counter =0;
   counter = counter + 1;
   printf("the value is %d\n",counter);

}
```

OUTPUT
—---------
the value is 1
the value is 2
the value is 3
the value is 4

Problem 11
TypeCastig

```
#include<stdio.h>
int main(){
   float f =12.38;
   int i = f;
   printf("f %f\n",f);
   printf("i %d",i);

}
```

OUTPUT
—----------

f 12.380000
i 12

Problem 12

```
#include<stdio.h>
int main(){
    int a;
    a=10;
    printf("a = %d \n",a);
    printf("the size o f a  %d \n",sizeof(a));
    return 0;
}
```

OUTPUT
—----------

a = 10
the size o f a 4

: