Day 2 programs

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1. Write a program to perform addition, subtraction, multiplication, division, and modulus operations on two user-provided integers.

```
#include <stdio.h>

int main()
{
        int a;
        printf("Enter the value of a:");
        scanf("%d",&a);
        int b;
        printf("Enter the value of b:");
        scanf("%d",&b);

        printf("Sum=%d\n",a+b);
    printf("Difference=%d\n",a-b);
    printf("Product=%d\n",a*b);
    printf("Division=%d\n",a/b);
    printf("Modulus=%d\n",a%b);
    return 0;

}
```

Output

```
Enter the value of a=10
```

Enter the value of b=5

Sum=15

Difference=5

Product=50

Division=2

Modulus=0

2. Write a program to calculate the average of five integers provided by the user.

```
#include <stdio.h>

int main()
{
	int a;
	printf("Enter the value of a:");
	scanf("%d",&a);
	int b;
	printf("Enter the value of b:");
	scanf("%d",&b);
	int c;
	printf("Enter the value of c:");
	scanf("%d",&c);
	int d;
	printf("Enter the value of d:");
	scanf("%d",&d);
	int e;
	printf("Enter the value of e:");
	scanf("%d",&e);
	int sum=a+b+c+d+e;
```

```
        printf("The Sum=%d\n",sum);
        printf("The average=%d\n",sum/5);
        return 0;


}
```

Output

Enter the value of a:1

Enter the value of b:2

Enter the value of c:3

Enter the value of d:4

Enter the value of e:5

Sum=15

average=3

3. Compute and display the area and perimeter of a rectangle given its length and width.

```
#include <stdio.h>

int main()
{
        int l=5;
        int b=2;
        printf("Area of Rectangle=%d\n",l*b);
        printf("Perimeter of Rectangle=%d\n",2*(l+b));
        return 0;
```

```
}
```

Output

Area of Rectangle=10

Perimeter of Rectangle=14

4. Write a program to calculate the compound interest using the formula:

A=P×(1+(r/100))^n

where P is the principal, r is the rate of interest, and n is the time period.

```
#include <stdio.h>


int main()
{
   int P=100;
   int r=6;
   int n=2;
   float A=P*(1+(r/100))^n;
   printf("The compound interest=%f\n",A);
   return 0;


}
```

Output

The compound interest=102.0

5. Write a program to convert a temperature from Celsius to Fahrenheit using the formula:

F=(9/5)*C+32

```
#include <stdio.h>


int main()
{
        int C=35;
        float F=((9.0/5.0)*C)+32;
        printf("Converted value from Celsius to Fahrenheit=%f\n",F);
        return 0;



}
```

Output

Converted value from Celsius to Fahrenheit=95.0

6. Write a program to swap the values of two variables without using a third variable, relying only on arithmetic operations.

```
#include <stdio.h>



int main()
{
   int a=6;
   int b=12;
```

```
    a=a+b;
    b=a-b;
    a=a-b;
    printf("The swapped value of a=%d\n",a);
    printf("The swapped value of b=%d\n",b);
    return 0;

}
```

Output

The swapped value of a=12

The swapped value of b=6

7. Write a program to find the sum of the digits of a given three-digit number.

```
#include <stdio.h>


int main()
{
    int num=343;
    int sum=0;
    sum=sum+num%10;
    num=num/10;
    sum=sum+num%10;
    num=num/10;
    sum=sum+num%10;
    printf("The sum of digits=%d\n",sum);
    return 0;
```

```
}
```

Output

The sum of digits=10

8. Calculate the hypotenuse of a right triangle given the lengths of the other two sides using the formula:

C = root over of (a^2 + b^2)

```
#include <stdio.h>
#include <math.h>

int main()
{
        int a=10;
        int b=20;
        float c=sqrt(a*a+b*b);
        printf("The hypotenuse=%f\n",c);
        return 0;


}
```

Output

The hypotenuse=22.36

9. Write a program to calculate the circumference and area of a circle given its radius. Use the formulas:

Area: πr^2

Circumference: 2πr

```
#include <stdio.h>



int main()
{
	int r=5;
	float area=3.14*5*5;
	float circumference=2*3.14*5;
	printf("Area of the circle=%f\n",area);
	printf("Circumference of the circle=%f\n",circumference);
	return 0;



}
```

Output

Area of the circle=78.50

Circumference of the circle=31.40

10. Write a program to calculate the profit or loss made on a transaction given the cost price and selling price of an item.

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

```
int main()
{
   float cp=150;
   float sp=120;
   if(sp>cp){
       printf("Profit  occured=%f\n",sp-cp);
   }
   else if(sp<cp){
       printf("Loss occured=%f\n",cp-sp);
   }
   else{
       printf("No profit or loss");
   }
   return 0;
 }
```

Output

```
 Loss occured=30.00
```

11. Write a program to check if two integers are equal, not equal, greater than, or less than each other using relational operators

```
   #include <stdio.h>



int main()
{
   int a=20;
   int b=10;
```

```
   printf("a>b=%d\n",a>b);
   printf("a>=b=%d\n",a>=b);
   printf("a<b=%d\n",a<b);
   printf("a<=b=%d\n",a<=b);
   printf("a!=b=%d\n",a!=b);
   printf("a==b=%d\n",a==b);

   return 0;

}
```

Output

```
------
a>b=1
a>=b=1
a<b=0
a<=b=0
a!=b=1
a==b=0
```

12. Determine whether a person is eligible to vote based on their age (age must be greater than or equal to 18).

```
#include <stdio.h>



int main()
{
   int age;
   printf("Enter the age:");
```

```
   scanf("%d",&age);
   if(age>=18){
      printf("The person is eligible to vote");
   }
   else{
      printf("The person is not eligible to vote");
   }
   return 0;

}
```

Output

Enter the age:18

The person is eligible to vote

13. Given three sides of a triangle, use relational operators to check if the triangle is valid (the sum of any two sides must be greater than the third side).

```
#include <stdio.h>



int main()
{
   int s1=5;
   int s2=10;
   int s3=15;
   if(s1+s2>s3 && s1+s3>s2 && s2+s3>s1){
      printf("The triangle is valid");
```

```
  }
  else{
      printf("The triangle is invalid");
  }

}
```

Output

The triangle is invalid

14. Compare the marks of two students to determine who scored higher, or if they have the same marks.

```
#include <stdio.h>



int main()
{
  int mark1=70;
  int mark2=75;
  if(mark1>mark2){
      printf("Student1 scored higher");
  }
  else if(mark1<mark2){
      printf("Student2 scored higher");
  }
  else
  {
      printf("Both have same marks");
```

```
    }
    return 0;
}
```

Output

Student2 scored higher

15. Write a program to compare three numbers and determine the largest number using relational operators.

```
#include <stdio.h>


int main()
{
    int a=5;
    int b=10;
    int c=15;
    if(a>b && a>c){
        printf("a is largest");
    }
    else if(b>c && b>a){
        printf("b is largest");
    }
    else{
        printf("c is largest");
    }
    return 0;
}
```

Output

---

c is largest

16. Use relational operators to determine if a given year is a leap year (divisible by 4 but not by 100 unless divisible by 400).

```
#include <stdio.h>



int main()
{
   int year;
   printf("Enter the year:");
   scanf("%d",&year);
   if(year%4==0 && year%100!=0 || (year%400==0)){
       printf("Leap Year");
   }
   else{
       printf("Not a leap year");
   }
   return 0;
}
```

Output

Enter the year:2020

Leap Year

17. Write a program to check if the temperature exceeds a threshold value (e.g., greater than 40 degrees Celsius) and display an alert message

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

```
int main()
{
   int temperature;
   printf("Enter the temperature:");
   scanf("%d",&temperature);
   if(temperature>40){
       printf("Temperature Exceeds");
   }
   else{
       printf("Safe Condition");
   }
   return 0;

}
```

Output

Enter the temperature:25

Safe Condition

18. Given the length of a password, check if it meets the minimum requirement of 8 characters using relational operators.

```
#include <stdio.h>


int main()
{
```

```
    int length;
    printf("Enter the length of password:");
    scanf("%d",&length);
    if(length>=8){
        printf("Requirement Satisfied");

    }
    else
    {
        printf("Requirement not satisfied");
    }
    return 0;
}
```

Output

Enter the length of password:7

Requirement not satisfied

19. Write a program to determine if one number is divisible by another using relational operators.

```
#include <stdio.h>


int main()
{
    int num1;
    printf("Enter the first number:");
    scanf("%d",&num1);
```

```
    int num2;
    printf("Enter the second number:");
    scanf("%d",&num2);
    if(num1%num2==0){
        printf("Divisible");
    }
    else{
        printf("Not Divisible");
    }
    return 0;
}
```

Output

Enter the first number:7

Enter the second number:2

Not Divisible

20. Check if a student meets the criteria for admission to a course based on their age (greater than or equal to 18) and marks (greater than or equal to 50).

```
#include <stdio.h>


int main()
{
    int age;
    printf("Enter the age:");
    scanf("%d",&age);
```

```
    int marks;
    printf("Enter the marks:");
    scanf("%d",&marks);

    if(age>=18 && marks>=50){
        printf("Eligible");
    }
    else{
        printf("Not Eligible");
    }
    return 0;

}
```

Output

```
-------
Enter the age:18
Enter the marks:50
Eligible
```