Conditional Checking

1. **Write a C program to read the age of a candidate and determine whether he is eligible to cast a vote or not.**

```
#include <stdio.h>

int main(){

	int age;

	printf("Enter your age: ");
	scanf("%d", &age);

	if(age >= 18)
	{
		printf("\nYou are eligible to cast vote.\n");
	}
	else
	{
		printf("\nYou are not eligible to cast vote.\n");
	}

	return 0;
}
```

2. **WAP in C to check whether the user given number is odd or even.**

```
#include <stdio.h>

int main(){
	// NOTE: the % (modulus) operator only works with int/integer in C programming language.
	// Odd/even concepts only work with integer numbers in mathematics.

	int num;

	printf("Enter a number: ");
	scanf("%d", &num);

	if(num % 2 == 0)
	{
		printf("\n %d is even number. \n", num);
	}
	else {
		printf("\n %d is odd number. \n", num);
	}

	return 0;
}
```

3. **WAP in C to enter a character and check whether the entered character is vowel or consonant.**

```
#include <stdio.h>

int main(){

        // NOTE: In C, single character should be quoted by single quote, not double quote.

        char ch;

        printf("Enter a character: ");
        scanf("%c", &ch);

    ch = tolower(ch);

        // NOTE: In C, single character should be quoted by single quote, not double quote.
        if(ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u')
        {
                printf("%c is a vowel.\n", ch);
        }
        else if (ch >= 'a' && ch <= 'z')
        {
                printf("%c is a consonant.\n", ch);
        }
        else
        {
                printf("%c is not an alphabet character.\n", ch);
        }

        return 0;
}
```

4. **WAP in C to enter a mark of any one subject and if the entered mark is greater than equals to 40 then print the result as pass otherwise print the result as fail.**

```
#include <stdio.h>

int main(){

	int mark;

	printf("Enter mark of any one subject: ");
	scanf("%d", &mark);

	if(mark >= 40)
	{
		printf("\n Pass");
	}
	else
	{
		printf("\n Fail");
	}

	return 0;
}
```

5. **WAP in C to check whether the given number is positive, negative or zero.**

```
#include <stdio.h>

int main(){

	// Best way: Also to include floating/decimal number inputs
	float num;

	// Prompting user to enter a number
	printf("Enter a number: ");
	scanf("%f", &num);
	printf("\n");

	if(num > 0)
	{
		printf("%.2f is positive number.\n", num);
	}
	else if(num < 0)
	{
		printf("%.2f is negative number.\n", num);
	}
	else
	{
		printf("%.2f is zero.\n", num);
	}

	return 0;
}
```

6. **WAP in C to display the largest number/value among the 3 numbers.**

```
#include <stdio.h>

int main(){

	double num1, num2, num3;

	printf("Enter three values/numbers: ");
	scanf("%lf %lf %lf", &num1, &num2, &num3);

	printf("\n");

	if(num1 >= num2 && num1 >= num3)
	{
		printf("%lf is greatest value/number.\n", num1);
	}
	else if(num2 >= num1 && num2 >= num3)
	{
		printf("%lf is greatest value/number.\n", num2);
	}
	else
	{
		printf("%lf is greatest value/number.\n", num3);
	}

	return 0;
}
```

7. **WAP to display the smallest value/number among three numbers.**

```
#include <stdio.h>

int main() {

	double num1, num2, num3;

	printf("Enter three numbers: ");
	scanf("%lf %lf %lf", &num1, &num2, &num3);


	if(num1 <= num2 && num1 <= num3)
	{
		printf("\n %lf is smallest number.\n", num1);
	}
	else if(num2 <= num1 && num2 <= num3)
	{
		printf("\n %lf is smallest number.\n", num2);
	}
	else
	{
		printf("\n %lf is smallest number.\n", num3);
	}

	return 0;
}
```

8. **WAP to check whether a user entered year is leap year or not.**

```
#include <stdio.h>

int main(){

	int year;

	printf("Enter a year: ");
	scanf("%d", &year);

	 if ((year % 4 == 0) && (year % 100 != 0) || (year % 400 == 0))
	{
		printf("%d is a leap year.\n", year);
	}
	else
	{
		printf("%d is not a leap year.\n", year);
	}

	return 0;
}
```

9. **Write a C program to read 3 angles of a triangle and check whether the triangle can be formed or not.**

```
#include <stdio.h>

int main() {

   float angle1, angle2, angle3;

   printf("Enter the three angles of the triangle: ");
   scanf("%f %f %f", &angle1, &angle2, &angle3);

  // Check if the sum of the angles of the triangle = 180 degree and all angles are greater than 0 degree.
   if (angle1 + angle2 + angle3 == 180 && angle1 > 0 && angle2 > 0 && angle3 > 0)
        {
        printf("The angles %.2f, %.2f, and %.2f can form a triangle.\n", angle1, angle2, angle3);
        }
        else
        {
         printf("The angles %.2f, %.2f, and %.2f cannot form a triangle.\n", angle1, angle2, angle3);
        }

   return 0;
}
```

10. **WAP in C to input three sides of a triangle and check whether a triangle can be formed or not.**

```
#include <stdio.h>

int main(){
float a, b, c;

// Input three sides of the triangle
   printf("Enter the length of side 1, side2 and side3: ");
   scanf("%f %f %f", &a, &b, &c);

// Check the conditions of the triangle inequality theorem
   if (a + b > c && a + c > b && b + c > a)
        {
      printf("The sides %.2f, %.2f, and %.2f can form a triangle.\n", a, b, c);
   }
        else
        {
      printf("The sides %.2f, %.2f, and %.2f cannot form a triangle.\n", a, b, c);
   }

   return 0;
}
```

11. WAP in C to enter 3 angles of a triangle and check whether it is an equilateral triangle or not.

```
#include <stdio.h>

int main(){

	float a, b, c;

	printf("Enter three angles of a triangle: ");
	scanf("%f %f %f", &a, &b, &c);

	if(a + b + c == 180 && a > 0 && b > 0 && c > 0)
	{
		if(a == 60 && b == 60 && c ==60)
		{
			printf("The angles %.2f, %.2f and %.2f forms an equilateral triangle.", a,b,c);
		}
		else
		{
			printf("The angles %.2f, %.2f and %.2f doesn't forms an equilateral triangle.", a,b,c);
		}
	}
	else
	{
		printf("The angles %.2f, %.2f and %.2f doesn't form a valid triangle.", a,b,c);
	}

	return 0;
}
```

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