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# CONDITIONAL STATEMENT

## Basic Syntax and Defination:

### if Statement:

Syntax:

if (condition)

{

// Code to execute if condition is true

}

-Executes a block of code if the specified condition is true.

### if...else Statement:

Syntax:

if (condition)

{

// Code to execute if condition is true

}

else

{

// Code to execute if condition is false

}

-Executes one block of code if the specified condition is true, and another block if it's false.

### else if Statement

Syntax:

if (condition1)

{

// Code to execute if condition1 is true

}

else if (condition2)

{

// Code to execute if condition2 is true

}

.

.

.

else

{

// Code to execute if all conditions are false

}

### Nested if Statements:

Syntax:

if (condition1)

{

if (condition2)

{

// Code to execute if both condition1 and condition2 are true

}

}

### switch Statement:

Syntax:

switch (expression)

{

case value1:

// Code to execute if expression equals value1

break;

case value2:

// Code to execute if expression equals value2

break;

.

.

.

default:

// Code to execute if expression does not match any case

break;

}

# PROGRAMS

## Exapmles of if Statements

### Example 1: Check if a Number is Positive

using System;

class PositiveNumberProgram

{

static void Main()

{

Console.Write("Enter a number: ");

int number = int.Parse(Console.ReadLine());

if (number > 0)

{

Console.WriteLine("The number is positive.");

}

if (number <= 0)

{

Console.WriteLine("The number is not positive.");

}

}

}

### Example 2: Check if a Number is Even

using System;

class EvenNumberProgram

{

static void Main()

{

Console.Write("Enter a number: ");

int number = int.Parse(Console.ReadLine());

if (number % 2 == 0)

{

Console.WriteLine("The number is even.");

}

if (number % 2 != 0)

{

Console.WriteLine("The number is odd.");

}

}

}

### Example 3: Check if a Number is a Multiple of 5

using System;

class MultipleOfFiveProgram

{

static void Main()

{

Console.Write("Enter a number: ");

int number = int.Parse(Console.ReadLine());

if (number % 5 == 0)

{

Console.WriteLine("The number is a multiple of 5.");

}

if (number % 5 != 0)

{

Console.WriteLine("The number is not a multiple of 5.");

}

}

}

### Example 4: Check if a Number is Zero

using System;

class ZeroProgram

{

static void Main()

{

Console.Write("Enter a number: ");

int number = int.Parse(Console.ReadLine());

if (number == 0)

{

Console.WriteLine("The number is zero.");

}

if (number != 0)

{

Console.WriteLine("The number is not zero.");

}

}

}

## Examples of if…..else Statements

### Check if a Number is Positive or Negative

using System;

class PositiveNegativeProgram

{

static void Main()

{

Console.Write("Enter a number: ");

int number = int.Parse(Console.ReadLine());

if (number > 0)

{

Console.WriteLine("The number is positive.");

}

else

{

Console.WriteLine("The number is negative or zero.");

}

}

}

### Check if a Year is a Leap Year

using System;

class LeapYearProgram

{

static void Main()

{

Console.Write("Enter a year: ");

int year = int.Parse(Console.ReadLine());

if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0))

{

Console.WriteLine("Leap year.");

}

else

{

Console.WriteLine("Not a leap year.");

}

}

}

### Check if a Number is Even or Odd

using System;

class EvenOddProgram

{

static void Main()

{

Console.Write("Enter a number: ");

int number = int.Parse(Console.ReadLine());

if (number % 2 == 0)

{

Console.WriteLine("The number is even.");

}

else

{

Console.WriteLine("The number is odd.");

}

}

}

## Examples of nested if…else statement

### Example 1: Check if a Number is Positive, Negative, or Zero

using System;

class NestedIfProgram

{

static void Main()

{

Console.Write("Enter a number: ");

int number = int.Parse(Console.ReadLine());

if (number >= 0)

{

if (number == 0)

{

Console.WriteLine("The number is zero.");

}

else

{

Console.WriteLine("The number is positive.");

}

}

else

{

Console.WriteLine("The number is negative.");

}

}

}

### Example 2: Check whether it is vowel or consonant, if input character is a valid alphabet

// C# program to demonstrate example of

// nested if else statement

using System;

namespace Examples {

class NestedIfProgram {

// Main Method

static void Main(string[] args) {

//input a character and check whether it is vowel or consonant

//but before it - check input character is an aplhabet or not

char ch;

Console.Write("Enter a character: ");

ch = Console.ReadLine()[0];

//check ch is an alphabet or not

if ((ch >= 'A' && ch <= 'Z') || (ch >= 'a' && ch <= 'z')) {

Console.WriteLine("{0} is a valid alphabet", ch);

//checking for vowel or consonant

if (ch == 'A' || ch == 'a' || ch == 'E' || ch == 'e' ||

ch == 'I' || ch == 'i' || ch == 'O' || ch == 'o' ||

ch == 'U' || ch == 'u') {

Console.WriteLine("{0} is a vowel", ch);

} else {

Console.WriteLine("{0} is a consonant", ch);

}

} else {

Console.WriteLine("{0} is not a valid alphabet", ch);

}

//hit ENTER to exit the program

Console.ReadLine();

}

}

}

### Example 3: Find greatest among 3 numbers

using System;

class GreatestAmongThree

{

static void Main()

{

Console.WriteLine("Enter three numbers:");

Console.Write("First number: ");

int num1 = int.Parse(Console.ReadLine());

Console.Write("Second number: ");

int num2 = int.Parse(Console.ReadLine());

Console.Write("Third number: ");

int num3 = int.Parse(Console.ReadLine());

int greatest;

if (num1 > num2)

{

if (num1 > num3)

{

greatest = num1;

}

else

{

greatest = num3;

}

}

else

{

if (num2 > num3)

{

greatest = num2;

}

else

{

greatest = num3;

}

}

Console.WriteLine("The greatest number among {0}, {1}, and {2} is: {3}", num1, num2, num3, greatest);

}

}

## Examples of Sequences of "if-else-if-else-…"(Ladder if statement)

### Example 1: Checking whether input integer is positive value, negative value or a zero

// C# program to demonstrate example of

// multiple if else statement

using System;

namespace Examples {

class Test {

// Main Method

static void Main(string[] args) {

//input an integer number and check whether

//it is postive, negative or zero

int number;

Console.Write("Enter an integer number: ");

number = Convert.ToInt32(Console.ReadLine());

//checking conditions

if (number > 0)

Console.WriteLine("{0} is a positive number", number);

else if (number < 0)

Console.WriteLine("{0} is a negative number", number);

else

Console.WriteLine("{0} is a Zero", number);

//hit ENTER to exit the program

Console.ReadLine();

}

}

}

### Example 2: Design calculator using if else if statements

using System;

namespace DesignCalculator {

class Program {

static void Main(string[] args) {

Console.WriteLine("Calculator");

Console.WriteLine("----------------------------");

Console.WriteLine("1.Add");

Console.WriteLine("2.Substract");

Console.WriteLine("3.Multiply");

Console.WriteLine("4.Divide");

Console.Write("Enter Choice(1-4):");

int ch = Int32.Parse(Console.ReadLine());

int a, b, c;

if (ch == 1) {

Console.Write("Enter A:");

a = Convert.ToInt32(Console.ReadLine());

Console.Write("Enter B:");

b = Convert.ToInt32(Console.ReadLine());

c = a + b;

Console.WriteLine("Sum = {0}", c);

} else if (ch == 2) {

Console.Write("Enter A:");

a = Convert.ToInt32(Console.ReadLine());

Console.Write("Enter B:");

b = Convert.ToInt32(Console.ReadLine());

c = a - b;

Console.WriteLine("Difference = {0}", c);

} else if (ch == 3) {

Console.Write("Enter A:");

a = Convert.ToInt32(Console.ReadLine());

Console.Write("Enter B:");

b = Convert.ToInt32(Console.ReadLine());

c = a \* b;

Console.WriteLine("Product = {0}", c);

} else if (ch == 4) {

Console.Write("Enter A:");

a = Convert.ToInt32(Console.ReadLine());

Console.Write("Enter B:");

b = Convert.ToInt32(Console.ReadLine());

c = a / b;

Console.WriteLine("Quotient = {0}", c);

} else {

Console.WriteLine("Invalid Choice");

}

Console.ReadKey();

}

}

}

### Example 3: Find greatest among 3 numbers

using System;

class GreatestAmongThree

{

static void Main()

{

Console.WriteLine("Enter three numbers:");

Console.Write("First number: ");

int num1 = int.Parse(Console.ReadLine());

Console.Write("Second number: ");

int num2 = int.Parse(Console.ReadLine());

Console.Write("Third number: ");

int num3 = int.Parse(Console.ReadLine());

int greatest;

if (num1 >= num2 && num1 >= num3)

{

greatest = num1;

}

else if (num2 >= num1 && num2 >= num3)

{

greatest = num2;

}

else

{

greatest = num3;

}

Console.WriteLine("The greatest number among {0}, {1}, and {2} is: {3}", num1, num2, num3, greatest);

}

}

### Example 4: Check if a Triangle is Equilateral, Isosceles, or Scalene

using System;

class TriangleTypeProgram

{

static void Main()

{

Console.WriteLine("Enter the lengths of the three sides of the triangle:");

Console.Write("Side 1: ");

int side1 = int.Parse(Console.ReadLine());

Console.Write("Side 2: ");

int side2 = int.Parse(Console.ReadLine());

Console.Write("Side 3: ");

int side3 = int.Parse(Console.ReadLine());

if (side1 == side2 && side2 == side3)

{

Console.WriteLine("Equilateral triangle.");

}

else if (side1 == side2 || side2 == side3 || side1 == side3)

{

Console.WriteLine("Isosceles triangle.");

}

else

{

Console.WriteLine("Scalene triangle.");

}

}

}

### Example 5: Determine the Grade based on Marks

using System;

class GradeProgram

{

static void Main()

{

Console.Write("Enter your marks: ");

int marks = int.Parse(Console.ReadLine());

if (marks >= 0 && marks <= 100)

{

if (marks >= 90)

{

Console.WriteLine("Grade: A+");

}

else if (marks >= 80)

{

Console.WriteLine("Grade: A");

}

else if (marks >= 70)

{

Console.WriteLine("Grade: B");

}

else if (marks >= 60)

{

Console.WriteLine("Grade: C");

}

else if (marks >= 50)

{

Console.WriteLine("Grade: D");

}

else

{

Console.WriteLine("Grade: E (Fail)");

}

}

else

{

Console.WriteLine("Invalid marks entered.");

}

}

}

## Examples of switch statements

### Example 1: Simple Switch Statement for Weekdays

using System;

class WeekdaySwitch

{

static void Main()

{

Console.Write("Enter a number (1-7) representing a day of the week: ");

int dayNumber = int.Parse(Console.ReadLine());

string day;

switch (dayNumber)

{

case 1:

day = "Sunday";

break;

case 2:

day = "Monday";

break;

case 3:

day = "Tuesday";

break;

case 4:

day = "Wednesday";

break;

case 5:

day = "Thursday";

break;

case 6:

day = "Friday";

break;

case 7:

day = "Saturday";

break;

default:

day = "Invalid day number";

break;

}

Console.WriteLine("The day corresponding to the number {0} is: {1}", dayNumber, day);

}

}

### Example 2: Calculator using switch case statement

using System;

namespace Calculator {

class Program {

static void Main(string[] args) {

Console.WriteLine("Calculator");

Console.WriteLine("----------------------------");

Console.WriteLine("1.Add");

Console.WriteLine("2.Substract");

Console.WriteLine("3.Multiply");

Console.WriteLine("4.Divide");

Console.Write("Enter Choice(1-4):");

int ch = Int32.Parse(Console.ReadLine());

int a, b, c;

switch (ch) {

case 1:

Console.Write("Enter A:");

a = Convert.ToInt32(Console.ReadLine());

Console.Write("Enter B:");

b = Convert.ToInt32(Console.ReadLine());

c = a + b;

Console.WriteLine("Sum = {0}", c);

break;

case 2:

Console.Write("Enter A:");

a = Convert.ToInt32(Console.ReadLine());

Console.Write("Enter B:");

b = Convert.ToInt32(Console.ReadLine());

c = a - b;

Console.WriteLine("Difference = {0}", c);

break;

case 3:

Console.Write("Enter A:");

a = Convert.ToInt32(Console.ReadLine());

Console.Write("Enter B:");

b = Convert.ToInt32(Console.ReadLine());

c = a \* b;

Console.WriteLine("Product = {0}", c);

break;

case 4:

Console.Write("Enter A:");

a = Convert.ToInt32(Console.ReadLine());

Console.Write("Enter B:");

b = Convert.ToInt32(Console.ReadLine());

c = a / b;

Console.WriteLine("Quotient = {0}", c);

break;

default:

Console.WriteLine("Invalid Choice");

break;

}

Console.ReadKey();

}

}

}

### Example 3: To check input character is a VOWEL or CONSOTANT

// C# - Example of switch Statement

using System;

namespace Program {

class Test {

// Main Method

static void Main(string[] args) {

char ch;

//input a character

Console.Write("Enter a character: ");

ch = Console.ReadLine()[0];

//checking for valid alphabet

if ((ch >= 'A' && ch <= 'Z') || (ch >= 'a' && ch <= 'z')) {

//checking for vowels

switch (ch) {

case 'A':

case 'a':

case 'E':

case 'e':

case 'I':

case 'i':

case 'O':

case 'o':

case 'U':

case 'u':

Console.WriteLine("Input character {0} is a Vowel", ch);

break;

default:

Console.WriteLine("Input character {0} is a Consonat", ch);

break;

}

} else {

Console.WriteLine("Input character {0} is not a valid alphabet", ch);

}

//hit ENTER to exit the program

Console.ReadLine();

}

}

}

# Other Program

### Sort 3 real numbers in descending order. Use nested if statements

using System;

class SortNumbersDescending

{

static void Main()

{

Console.WriteLine("Enter three real numbers:");

Console.Write("First number: ");

double num1 = double.Parse(Console.ReadLine());

Console.Write("Second number: ");

double num2 = double.Parse(Console.ReadLine());

Console.Write("Third number: ");

double num3 = double.Parse(Console.ReadLine());

double first, second, third;

if (num1 >= num2)

{

if (num1 >= num3)

{

first = num1;

if (num2 >= num3)

{

second = num2;

third = num3;

}

else

{

second = num3;

third = num2;

}

}

else

{

first = num3;

second = num1;

third = num2;

}

}

else

{

if (num2 >= num3)

{

first = num2;

if (num1 >= num3)

{

second = num1;

third = num3;

}

else

{

second = num3;

third = num1;

}

}

else

{

first = num3;

second = num2;

third = num1;

}

}

Console.WriteLine("Numbers in descending order: {0}, {1}, {2}", first, second, third);

}

}

### Write a program that finds the greatest of given 5 numbers

using System;

class GreatestAmongFive

{

static void Main()

{

Console.WriteLine("Enter five numbers:");

Console.Write("Number 1: ");

double num1 = double.Parse(Console.ReadLine());

Console.Write("Number 2: ");

double num2 = double.Parse(Console.ReadLine());

Console.Write("Number 3: ");

double num3 = double.Parse(Console.ReadLine());

Console.Write("Number 4: ");

double num4 = double.Parse(Console.ReadLine());

Console.Write("Number 5: ");

double num5 = double.Parse(Console.ReadLine());

double greatest = num1;

if (num2 > greatest)

{

greatest = num2;

}

if (num3 > greatest)

{

greatest = num3;

}

if (num4 > greatest)

{

greatest = num4;

}

if (num5 > greatest)

{

greatest = num5;

}

Console.WriteLine("The greatest number among {0}, {1}, {2}, {3}, and {4} is: {5}", num1, num2, num3, num4, num5, greatest);

}

}

### Write a program that asks for a digit (0-9), and depending on the input, shows the digit as a word (in English). Use a switch statement.

using System;

class DigitToWord

{

static void Main()

{

Console.Write("Enter a digit (0-9): ");

int digit = int.Parse(Console.ReadLine());

string digitWord;

switch (digit)

{

case 0:

digitWord = "zero";

break;

case 1:

digitWord = "one";

break;

case 2:

digitWord = "two";

break;

case 3:

digitWord = "three";

break;

case 4:

digitWord = "four";

break;

case 5:

digitWord = "five";

break;

case 6:

digitWord = "six";

break;

case 7:

digitWord = "seven";

break;

case 8:

digitWord = "eight";

break;

case 9:

digitWord = "nine";

break;

default:

digitWord = "Invalid digit";

break;

}

Console.WriteLine("The digit {0} corresponds to the word '{1}'", digit, digitWord);

}

}