C# Learning Journey Day 4

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Array and Conditions

1-Array

Within this portion we learn about Array and its types and how we write a code for each type so the Array is a collection of elements of the same data type stored in the memory location. However Array is a Reference Type so the values stored in Heap as a block together and we can access to the elements by index.we put a variable inside the array to make it flexible for the user to enter any number of value

Declaration Rule for Array:

<DataType>[ ]<varname> = new <DataType [size]>;
string[ ] name = new string[2];
name[0]= "Asma"; ***//initialization***
name[1]="Sara"; ***//initialization***

Declaration and initialization in one line:
int[ ] number = new int[3] {3,5,8} ;

Array Type:

#One Dimensional Array
#Multi Dimensional Array
#Jagged Array

1. **-One Dimensional Array:**

```
string[] names = new string[3];
names[0] = "Asma";
names[1] = "Sara";
names[2] = "Ahmed";
Console.WriteLine("your name is : " + names[2]);
```

2. **Multi Dimensional Array:** it is an Array with multi rows and columns dimension.

```
int[ , ] Grades = new int[2,2]; // 2 raws , 2 columns
Grades[0, 0] = 1;
Grades[0, 1] = 2;
Grades[1, 0] = 1;
Grades[1, 1] = 3;
```

3. **Jagged Array:** a jagged array is an array inside an array or a main array that has a collection of arrays inside it and each array has a different size or number of elements.

```
string[ ][ ] colors = new string[3][ ];
colors[0] = new string[1] { "red" };
colors[1] = new string[4] { "blue", "white", "orange", "black" };
colors[2] = new string[3] { "gray", " orange", "green" };
Console.WriteLine("color: " + colors[1][2]); //access data
```

Access data :

[1] ==> index of main array

[2]==> index of array collection

access the second element in the second array

Slicing Array:

used to destructing your Array into smaller section by using Range Operator [from..to]

[1,2,3,4]==>Array

slice[1..3]==>{2,3}==>skipping the first element

slice[..3]==>{1,2,3}==>start from first element

slice[2..]==>{3,4}==>to the last element

==>Array should has size

1-Condition

We learn in this section that we have three types of condition:
-If
-If else
-Switch
-Ternary

but on Day 4 we just learn about if and if else only so i will explain it now.

1. **if condition:** in C# the if condition is a conditional statement that allow you to execute a block of code based on a specific condition the basic syntax of an if statement is :

```
if (condition)
{
// code to execute if the condition is true
}
```

2. **if else condition:** In C# the if else condition allows you to create a branching structure based on a condition.if the conditions specified in the if statement is true the code block inside the if will be executed otherwise the code block inside the else will be executed.

```
if (condition)
{
//code execute if the condition is true
}
else
{
 //code execute if the condition in false
}
```

==>if else condition Example:

```
Console.WriteLine("hello please enter student grade:");
int value = Convert.ToInt32(Console.ReadLine());
if (value >= 80)
{
   Console.WriteLine("Succeed");
}
else
{
   Console.WriteLine("failed");
}
```