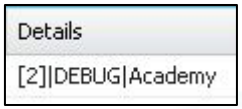
String Exception due to Index

- Take care about the index while using the substring method with indexes.
- As, it might lead to Out of Bounds exception if an index outside the valid range is used.

index --	0	1	2	3	4	5	6	7	8	9	10	11
characters --	Y	O	L	L		A	C	A	D	E	M	Y

- Hence, for the above String the valid range of index is 0 - 11.

```
1  String var = 'Yoll Academy';
2  System.debug(var.substring(5,12));
```

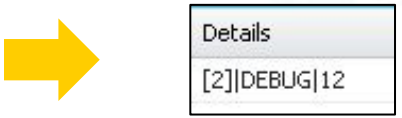



```
1  String var = 'Yoll Academy';
2  System.debug(var.substring(5,13));
```

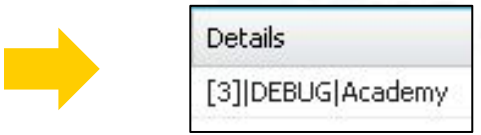
String Class Methods

- **length:**
  - Returns the number of characters contained in the String.
  - It is good practice to use length of string as index instead of hardcoded indexes.

```
1  String var = 'Yoll Academy';
2  System.debug(var.length());
```




```
1  String var = 'Yoll Academy';
2  Integer len = var.length();
3  System.debug(var.substring(5,len));
```



Assignment

- Write a program in Apex with a string variable name and assign: “David Johnson” as value
- Using the string methods break the full name into first name and last name.
  - **Output**
    Name = David Johnson
    First Name = David
    Last Name = Johnson

- Make sure that your code is dynamic. Meaning, it will still work, if we change the variable value to a different name, for example: Kimberly Beck
  - **Output**
    Name = Kimberly Beck
    First Name = Kimberly
    Last Name = Beck

1. Make sure to use **substring(startIndex, endIndex)** version of substring only. (Hint: You may need 2 methods)
2. **Do not** use substring(startIndex), substringBefore() and substringAfter() methods/

Homework 11

- Write a program in Apex with three string variables ‘name1’, ‘name2’ and ‘name3’.
- Assign three names, one in each variable.
- Each name should contain ‘First Name’ and ‘Last Name’. For example: ‘David Johnson’.
- Create a variable named ‘userInput’ and assign any of the three variables.
  userInput = name1/name2/name3;
- Find out the last two characters of first name and last name and Print the output as shown below-
  Sample Output
  Name = David Johnson
  Last 2 characters of First Name = id
  Last 2 characters of Last Name = on

  [**NOTE-**
  1. Make sure to use only substring(startIndex, endIndex) version of substring only.
  2. substring(startIndex), substringBefore() and substringAfter() methods are not allowed]

Expressions and Operators:

Expressions and Operators

- An operator, in computer programing, is a symbol that usually represents an action or process.
- An expression is a construct made up of variables, operators, and method invocations that evaluates to a single value
- In the expression x = y; '=' is operator and 'x' and 'y' are operands.

Operator	Syntax	Description
=	x = y	**Assignment Operator.** Value of y is assigned to x. Datatype of x should same as y. But should not 'null'.

Expressions and Operators:

Arithmetic Operators:

- These operators performs arithmetic operations on operands.
- Data type of result depends on the data type of operands.

Operator	Syntax	Description
+	x + y	It will add x and y.
-	x - y	It will subtract y from x.
*	x * y	It will multiply x and y.
/	x / y	It will divide x and y.

Expressions and Operators:

Arithmetic Operators: (continue)

- In an expression with mixed data type, the data type of the result will always be in a data type with bigger size.
- Data type order in size: Integer < Long < (Double = Decimal)

Operand 1	Operand 2	Result
Integer	Integer	Integer
Integer	Long	Long
Integer	Double	Double
Integer	Decimal	Decimal

Operand 1	Operand 2	Result
Long	Long	Long
Long	Double	Double
Long	Decimal	Decimal

Division

- If we divide 2 integers numbers we may get a wrong answer.
  - For example:

- To avoid this issue, we need to specify one of the integers as double
  -

Assignment

- Write a program in Apex with one integer and one double variable,
- assign values to them
- perform all the arithmetic operations
- and store result in a third variable and print it.

For example:

15 + 2.5 = 17.5
15 - 2.5 = 12.5
15 * 2.5 = 37.5
15 / 2.5 = 6.0

Homework 12

- Write a program in Apex.
- Create two variables for length and width of a rectangle and a third variable for the area of rectangle.

  [Hint: Length, Width and Area of a rectangle are real numbers]
- Assign length and width of the rectangle. [Assign value upto 1 decimal place only]
- Calculate and assign the area of the rectangle. Make sure the area of rectangle should be upto 1 decimal place only.
- Print the length, width and area of rectangle.

  Sample Output:

  Length = 1.8

  Width = 2.7

  Area = 4.9

Expressions and Operators:

Relational Operators: These operators performs comparison operations and returns value in Boolean (true or false).

Operator	Syntax	Description
>	x > y	It will return true if value of x is greater than value of y.
<	x < y	It will return true if value of x is less than value of y.
>=	x >= y	It will return true if value of x is greater than or equal to value of y.
<=	x <= y	It will return true if value of x is less than or equal to value of y.
==	x == y	It will return true if value of x is equal to value of y.
!=	x != y	It will return true if value of x is not equal to value of y.

Assignment

- Write a program in Apex with two integer variables, assign values to them and perform all the relational operations and store result in a third variable. On executing the program it should show result as given below.
  15 > 10: true
  15 < 10: false
  15 >= 10: true
  15 <= 10: false
  15 == 10: false
  15 != 10: true

Homework 13

- We have a sentence: ‘CRM helps companies to manage their relationships with their customers.’
- You have 2 keywords: ‘customers’ and ‘manage’
- Write an apex program that prints **true** if the word ‘customer’ comes before the word ‘manage’

Expressions and Operators:

Arithmetic Assignment Operators:

- These operators are used for arithmetic operations as a shortcut of changing value of the variable .
- It performs the operation and update the common operand with the new value.

Operator	Syntax	Description
+=	x += y	It will consider this operation as "x = x + y" and accordingly, it will end up changing x's value.
-=	x -= y	It will consider this operation as "x = x - y" and accordingly,it will end up changing x's value.
*=	x *= y	It will consider this operation as "x = x * y" and accordingly, it will end up changing x's value.
/=	x /= y	It will consider this operation as "x = x / y" and accordingly,it will end up changing x's value.

Assignment

- Write a program in Apex with one integer and assign any value and print it.
- Add 5 to the variable's value, update the variable and print it.
- Subtract 9 from the variable's, update the variable and print it.
- Multiply 10 to the variable's value, update the variable and print it.
- Divide the variable's value by 2, update the variable and print it.
- On executing the program it should show result as given below.
  Original value = 10
  After adding 5 the new value = 15
  After subtracting 9 the new value = 6
  After multiplying 10 the new value = 60
  After dividing 2 the new value = 30

  [Hint: Use arithmetic assignment operator to perform the task.]

Homework 14

- Guess the output of the following statements.

```
Integer a = 10, b = 7;
a += b;
System.debug(a); // Statement 1
b -= 2;
a -= b;
System.debug(a+b);// Statement 2
a *= b;
System.debug(a); // Statement 3
a /= b;
System.debug(a+b);// Statement 4
```