

- A string is one or more characters used as a constant in a program
  - e.g. "Hello"

```
//program will need to use class Scanner to receive input from user
import java.util.Scanner;

//program will need to use class String to declare variables as strings
import java.lang.String;

public class Addition
{
    public static void main( String args[] )
    {
        //create Scanner to obtain input from command window
        //in is a variable name used to read an input from a user
        Scanner duh = new Scanner( System.in );
        String name;

        System.out.println ( "Enter your last name :" );
        name = duh.next(); //read string from user NOTICE we use in.next()

        System.out.print ("Your last name is ");
        System.out.println (name);
    }
}
```

- how do we enter spaces into a string?
 

```
name = in.nextLine();
```

```
//program will need to use class Scanner to receive input from user
import java.util.Scanner;

//program will need to use class String to declare variables as strings
import java.lang.String;

public class Addition
{
    public static void main( String args[] )
    {
        //create Scanner to obtain input from command window
        //in is a variable name used to read an input from a user
        Scanner in = new Scanner( System.in );
        String name;

        System.out.println ( "Enter your full name :" );
        name = in.nextLine(); //read string from user NOTICE we use in.next()

        System.out.print ("Your last name is ");
```

```

        System.out.println (name);
    }
}

```

## ICS3U - Strings

1. Create the following variable called *name* of type string and initialize it to "Chens^1^Class"

```
String name="Chens 1 Class";
```

Trace through the following segments.

Commands	Memory	Output
System.out.println(name.length());	String name="Chens 1 Class";	13
System.out.println(name.length() + 1);	String name="Chens 1 Class";	14
System.out.println(name.charAt(4));	String name="Chens 1 Class";	s
System.out.println(name.charAt(22));	String name="Chens 1 Class";	Exception in thread "main" <a href="#">java.lang.StringIndexOutOfBoundsException</a> : String index out of range: 22 at java.lang.String.charAt(Unknown Source) at Question1.main( <a href="#">Question1.java:19</a> )
char y = name.charAt(6); System.out.println(y); int z = y - '0'; System.out.println(z);	String name="Chens 1 Class"; y=1 z=1	1 1
System.out.println(name.indexOf('n'));	String name="Chens 1 Class";	3
int x = name.indexOf('n');	String name="Chens 1 Class"; x=3	
int x = name.indexOf('n'); char y = name.charAt(x); System.out.println(x + " " + y);	String name="Chens 1 Class";	3 n

	x=3 y=n	
<code>int x = name.indexOf('C');</code> <code>System.out.println(x);</code>	String name="Chens 1 Class"; x=0	0
<code>int x = name.indexOf('C');</code> <code>char y = name.charAt(x);</code> <code>int z = name.indexOf('C', x);</code> <code>System.out.println(x + " " + z);</code>	String name="Chens 1 Class"; x=0 y=C z=0	0 0
<code>int x = name.indexOf('C');</code> <code>char y = name.charAt(x);</code> <code>int z = name.indexOf('C', x+1);</code> <code>System.out.println(x + " " + z);</code>	String name="Chens 1 Class"; x=0 y=C z=h	0 8
<code>String x = name.substring(6);</code> <code>System.out.println(x);</code>	String name="Chens 1 Class"; x= 1 Class	1 Class
<code>String x = name.substring(6, 8);</code> <code>System.out.println(x);</code>	String name="Chens 1 Class"; x=1	1
<code>int i = name.length();</code> <code>String x = name.substring(i-2);</code> <code>System.out.println(x);</code>	String name="Chens 1 Class"; i=13 x=ss	ss
<code>int i = name.length();</code> <code>i=i-2;</code> <code>String x = name.substring(i);</code> <code>System.out.println(x);</code> <code>i = i -2;</code> <code>x = name.substring(i);</code> <code>System.out.println(x);</code>	String name="Chens 1 Class"; i=13,11 x=ss,lass	ss lass

<pre> int i = name.length(); int e = name.length(); i=i-2; String x = name.substring(i,e); System.out.println(x); i =i-2; e=e-2; x = name.substring(i,e); System.out.println(x); </pre>	<pre> String name="Chens 1 Class"; i=13,11,9 e=13,11 x=lass,ass </pre>	<pre> ss la </pre>

2. substring() - Write a program that will create a string (x) that is initialized to "Canada". Using string methods produce the following output by removing the last letter in the string until only one Character is left.

```

Canada
Canad
Cana
Can
Ca
C

```

```

String x = "Canada";
System.out.println(x);
x = x.substring(0,5);
System.out.println(x);
x = x.substring(0,4);
System.out.println(x);
x = x.substring(0,3);
System.out.println(x);
x = x.substring(0,2);
System.out.println(x);
x = x.substring(0,1);
System.out.println(x);

```

3. Find the cumulative total of the digits in the following string: "12349". That is, convert each digit to an integer and find out what  $1 + 2 + 3 + 4 + 9$

```

String x = "12349";
char n0,n1,n2,n3,n4;
n0 = x.charAt(0);
int N0 = n0 - '0';
n1 = x.charAt(1);
int N1 = n1 - '0';
n2 = x.charAt(2);
int N2 = n2 - '0';
n3 = x.charAt(3);
int N3 = n3 - '0';
n4 = x.charAt(4);
int N4 = n4 - '0';
System.out.println(N0+N1+N2+N3+N4);

```

Find the cumulative total of the numbers in the following string where each number is separated by a ':': "12.34.9". That is, convert each digit to an integer and find out what  $12 + 34 + 9$

```

String x = "12.34.9";

```

```
String n1,n2,n3;  
n1 = x.substring(0,2);  
int N1 = Integer.parseInt(n1);  
n2 = x.substring(3,5);  
int N2 = Integer.parseInt(n2);  
n3 = x.substring(6);  
int N3 = Integer.parseInt(n3);  
System.out.println(N1+N2+N3);
```