

Strings and Random Numbers

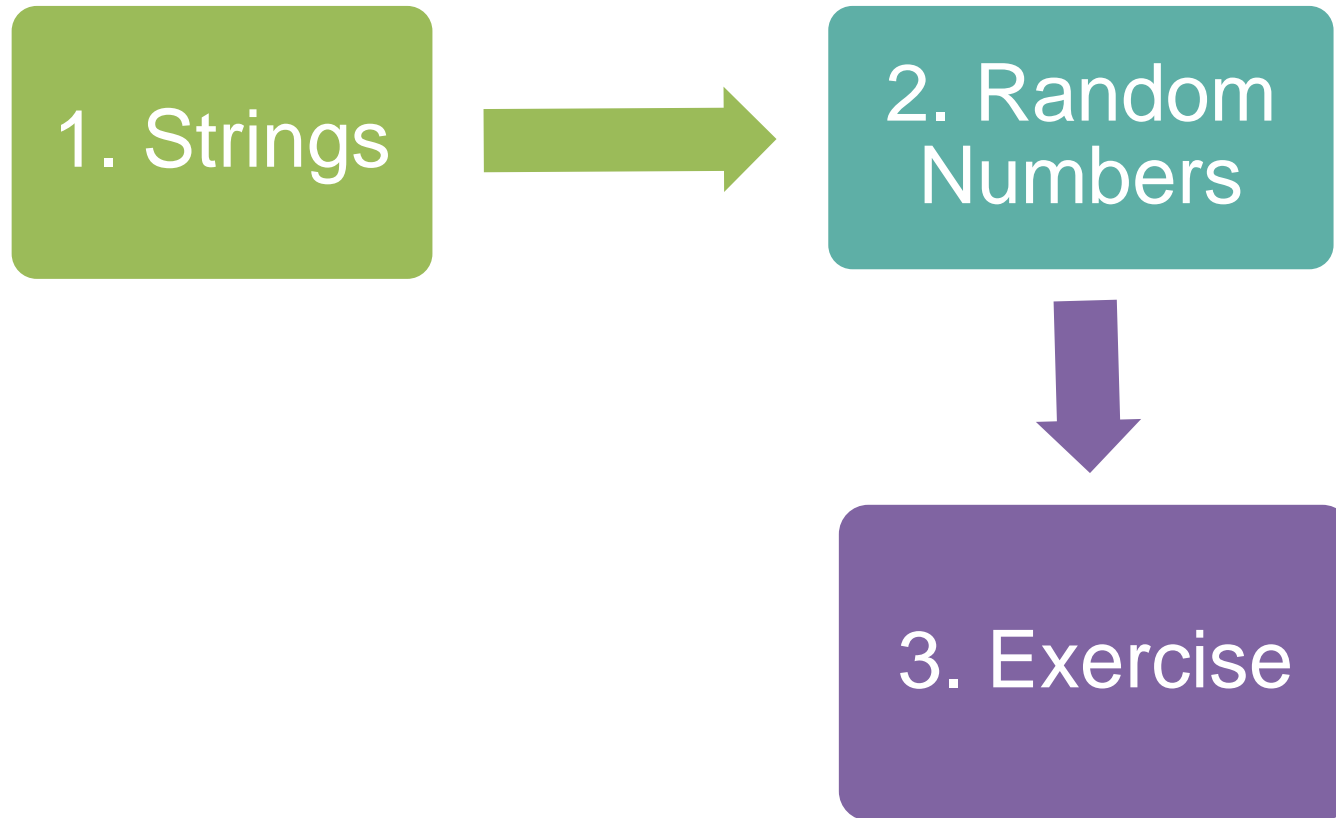
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Object Oriented Programming



Agenda



1. Strings

[Deitel] Chapter 29

Strings Declarations

String Miscellaneous

Strings Declarations

```
private static void stringDeclarationExamples() {  
  
    String simpleString = "Hello";  
    char[] charArray = {'H', 'e', 'l', 'l', 'o', ' ', 'S', 't', 'r', 'i', 'n', 'g', 's'};  
  
    String string1 = "";  
    String string2 = new String();  
    String string3 = new String(charArray);  
    String string4 = new String(charArray, 6, 7);  
  
    System.out.printf("S1: %s\nS2: %s\nS3: %s\nS4: %s\n", string1, string2, string3, string4);  
  
}
```

Output - Assignment00 (run)



|



S1:

S2:



S3: Hello Strings



S4: Strings

BUILD SUCCESSFUL (total time: 0 seconds)

String Miscellaneous

```
private static void stringMiscellaneousExamples() {  
  
    String exampleString = "Hello Strings World!!!";  
  
    System.out.println("Length of string: " + exampleString.length());  
  
    System.out.println("Substring from position 6: " + exampleString.substring(6));  
  
    System.out.println("Substring from position 0 to position 6: " + exampleString.substring(0, 6));  
  
    System.out.println("UpperCase String: " + exampleString.toUpperCase());  
  
    System.out.println("LowerCase String: " + exampleString.toLowerCase());  
  
    System.out.println("Char at position 6 is: " + exampleString.charAt(6));  
  
    System.out.println("Position of word \"Strings\" is: " + exampleString.indexOf("Strings"));  
  
    System.out.println("Position of character 'W' is: " + exampleString.indexOf('W'));  
  
    System.out.println("Position of character 'X' is: " + exampleString.indexOf('X'));  
  
    System.out.println("Is the string empty?: " + exampleString.isEmpty());  
  
    System.out.println("Is the string equals to \"This new String\"?: " + exampleString.equals("This new String"));  
  
    System.out.print("Conversion from String to char Array: ");  
    char[] stringToArray = exampleString.toCharArray();  
    for (char character : stringToArray) {  
        System.out.print(character);  
    }  
}
```

String Miscellaneous

Output - Assignment00 (run)



String miscellaneous



Lenght of string: 22



Substring from position 6: Strings World!!!



Substring from position 0 to position 6: Hello

UpperCase String: HELLO STRINGS WORLD!!!

LowerCase String: hello strings world!!!

Char at position 6 is: S

Position of word "Strings" is: 6

Position of character 'W' is: 14

Position of character 'X' is: -1

Is the string empty?: false


Is the string equals to "This new String?": false

Conversion from String to char Array: Hello Strings World!!!

BUILD SUCCESSFUL (total time: 1 second)

2. Random numbers

Remember to import the
Random Class

```
6  
7  import java.util.Random;  
8
```


Generating random numbers

```
private static void randomGeneratorExample() {  
  
    Random randomGenerator = new Random();  
  
    int randomInteger = randomGenerator.nextInt();  
    System.out.println("Random Integer: " + randomInteger);  
  
    randomInteger = randomGenerator.nextInt(10);  
    System.out.println("Random Integer between 0 and 9: " + randomInteger);  
  
    double randomDouble = randomGenerator.nextDouble();  
    System.out.println("Random Double: " + randomDouble);  
  
    boolean randomBoolean = randomGenerator.nextBoolean();  
    System.out.println("Random Boolean: "+randomBoolean);  
  
}
```

Generating random numbers

Output - Assignment00 (run)

```
run:
Random Generator Example
Random Integer: 2134666166
Random Integer between 0 and 9: 5
Random Double: 0.8601643981826731
Random Boolean: false
BUILD SUCCESSFUL (total time: 0 seconds)
```

Output - Assignment00 (run)

```
run:
Random Generator Example
Random Integer: 282239801
Random Integer between 0 and 9: 7
Random Double: 0.9076075858352167
Random Boolean: true
BUILD SUCCESSFUL (total time: 0 seconds)
```

Output - Assignment00 (run)

```
run:
Random Generator Example
Random Integer: 2029857483
Random Integer between 0 and 9: 3
Random Double: 0.4647932908629837
Random Boolean: true
BUILD SUCCESSFUL (total time: 0 seconds)
```

Output - Assignment00 (run)

```
run:
Random Generator Example
Random Integer: -1551361959
Random Integer between 0 and 9: 3
Random Double: 0.38791492608588785
Random Boolean: true
BUILD SUCCESSFUL (total time: 0 seconds)
```

3. Exercise

HangMan

- Write the program HangMan
 - Program must choose randomly the secret word from a predefined list. (Given by me 😊)
 - Program must show after each player turn the current game state:
 - Which letters has been discovered. For example:
_ b _ e _ t _ (Objects)
 - How many errors has been committed until complete this figure
q(x_x)p
 - Which letters has been used

Game Output example

System (Secret word = "object")	Player
_ _ _ _ _	
	User try the letter a
_ _ _ _ _ q a	
	User try the letter j
_ _ j _ _ q aj	
	User try the letter w
_ _ j _ _ q(ajw	
	User try the letter n
_ _ j _ _ q(X ajn w	
	User try the letter b
_ b j _ _ q(X abjnw	

we

Game Output example

System (Secret word = "object")	Player
o b j e c _ q(X_X) abcde...	
	User try the letter t
o b j e c t q(X_X) abcde...	
You Win !!!	

System (Secret word = "object")	Player
o b j e c _ q(X_X) abcde...	
	User try the letter p
o b j e c t q(X_X)P abcde...	
You Lose !!! The secret word is: object	

References

- [Barker] J. Barker, *Beginning Java Objects: From Concepts To Code*, Second Edition, Apress, 2005.
- [Deitel] H.M. Deitel and P.J. Deitel, *Java How to Program: Early Objects Version*, Prentice Hall, 2009.
- [Sierra] K. Sierra and B. Bates, *Head First Java*, 2nd Edition, O'Reilly Media, 2005.