



TKPJava Language Notes

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TKPJava Language Concepts

Course 1, 2

- Getters/Setters
- For Loops
- Methods
- Exceptions
- Variables

Course 3, 4

- If, If/Else

Course 5

- HashMaps
- Lists, Arrays

Course 6

- Model-View-Controller
- String Concatenation

Course 7

- Object instances
- Special Methods
 - Main
 - Constructor

Course 8

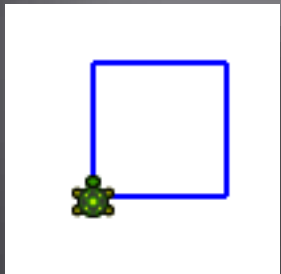
- Foreach Loops
- ArrayLists
- Events

Course 9

- Do/While Loops
- Unit Tests / TDD

Keywords

- List



COURSE 1



*To view a Value -- **Getters***

```
GetPenColor ( );
```

```
GetPenWidth ( );
```

```
GetSpeed ( );
```



*To Change a Value -- **Setters***

```
SetPenColor (PenColors.Red.Red);  
SetPenWidth (5);  
SetX (10);
```



For Loops

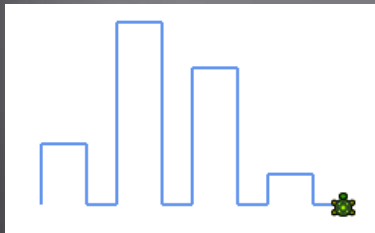
```
for (int i = 0; i < stop; i++) {  
    //Do something many times  
}
```



Try Catch Finally

```
try
    { //Do something }
catch (Exception e)
    { //Handle exception }
finally
    { //Always do this }
```





COURSE 2



Methods are like *Verbs*

```
public static void sayIt (String s) {  
    //Say something  
}
```



Use a Method

```
String greeting = "hello";
```

```
//Say hello
```

```
sayIt (greeting);
```



Create and Assign Variables

//the current zipcode is 90210

String zipcode = "90210";



Increment Variables

```
int age = 15;
```

```
age += 1;
```

//Shortcut

```
age = age + 1;
```



Increment Variables again...

```
int age = 16;
```

```
age ++;           //Another shortcut
```



Input

?

Can you guess the number?

OK Cancel

COURSE 3

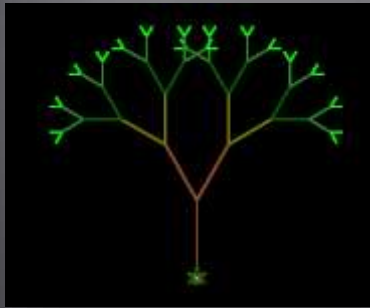


Conditionals - If

```
int test = -1;  
if (test < 0) {  
    //Do something  
}
```


Conditionals – If / Else

```
int test = 75;  
if (test ==> 90)  
    { //Do something }  
else if (test ==> 80)  
    { //Do something else }  
else  
    { //Do something else }
```



COURSE 5



HashMaps

```
HashMap<Integer, Color> c =  
    new HashMap <Integer, Color> ();  
c.put(1, Colors.Red.Red);  
c.get(1);
```



Arrays

```
String words[ ] =  
    new String[ ] {"hi", "Java"};  
words.get[1];      //Gets "Java"
```



More Arrays

//Simpler set up – fixed length

```
int [ ] coins = {1,5,10,25,50};
```



Message



Today I woke enormously. Then I avoided my elbow.

OK

COURSE 6



String Concatenation

```
String story = "This is my story";
```

```
//Add to your story
```

```
story += ". I am " + 15 + " years old";
```



RegEx – Regular Expressions

```
String adverb = "2";  
if (adverb.matches("[\\d]*")) {  
    //Checks for pattern match  
}
```



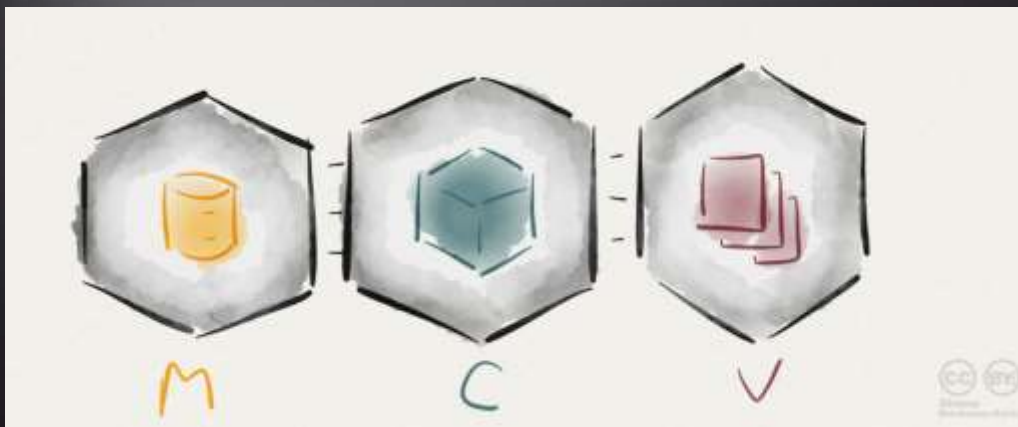
Model-View-Controller

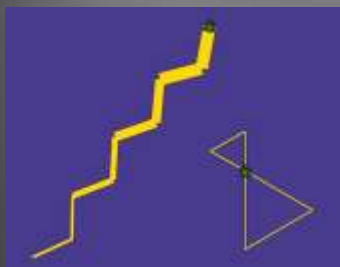
```
//Model
```

```
String story = "This is my story";
```

```
//View and Controller
```

```
MessageBox.showMessageDialog(story);
```

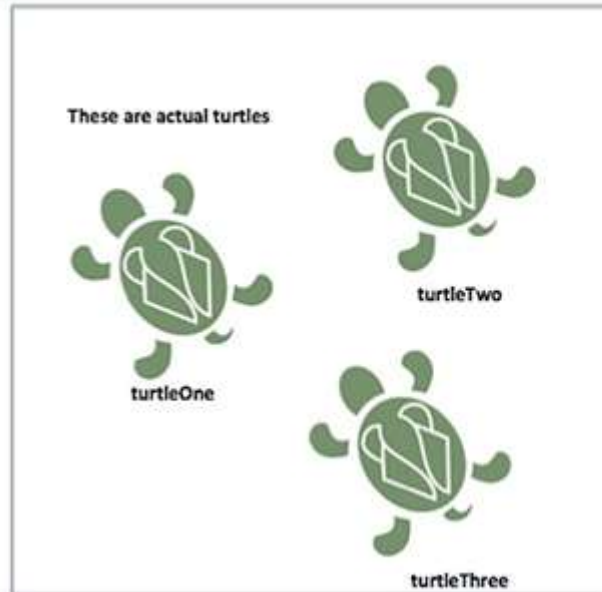
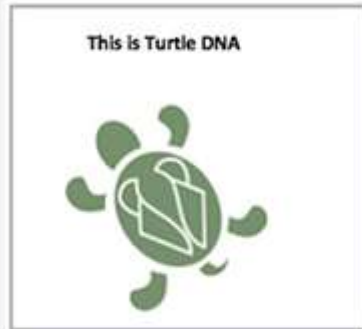




COURSE 7



Objects and Instances - 1



Objects and Instances

```
Turtle turtle1 = new Turtle( );
```

```
Turtle turtle2 = new Turtle( );
```

```
turtle1.setX(20);
```

```
turtle2.setX(50);
```



Main Method starts it all

```
public static void main (String[ ] args) {  
    //Start by doing something  
}
```



Constructor (Method)

```
public class Animal( ) {  
    public Animal( ) {  
        //Create your Animals here  
    }  
}
```


Foreach Loops

```
for (Turtle turtle : turtles) {  
    //Do something to each one  
}
```

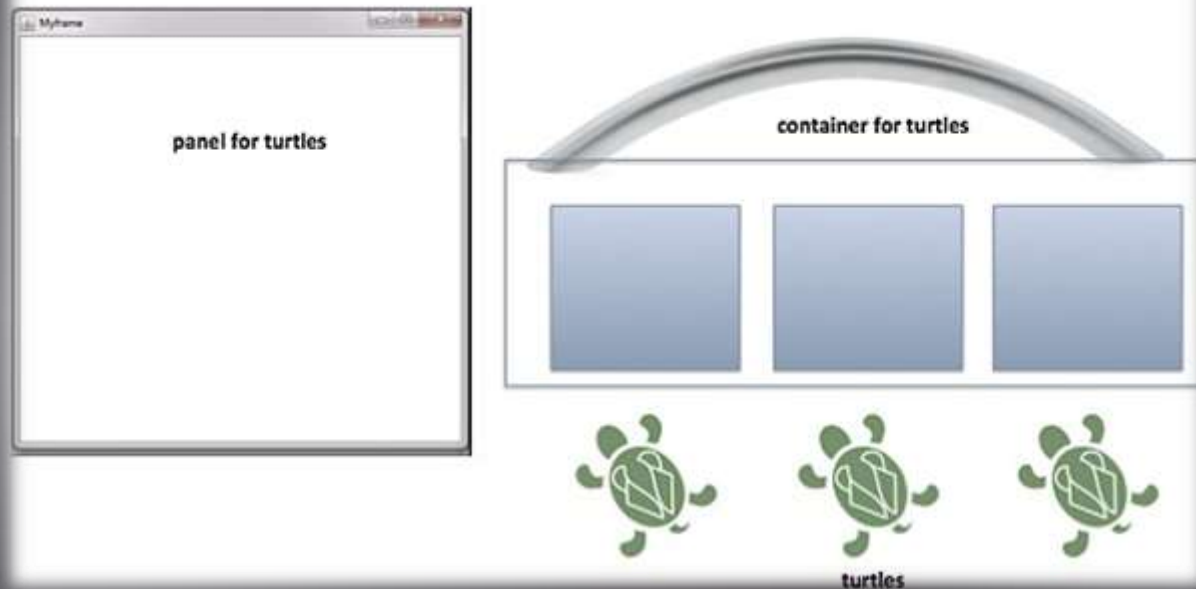


ArrayList

```
ArrayList<String> words=  
    new ArrayList<String>( );  
words.add("Java"); //Adds "Java"  
//Adjustable length list
```



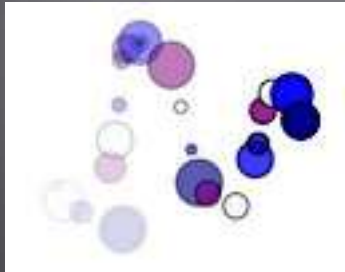
Objects and Instances - 2



ArrayList...again

```
ArrayList<Turtle> turtleBag =  
    new ArrayList<Turtle>( );  
Turtle t1 = new Turtle( );  
turtleBag.add(t1);
```





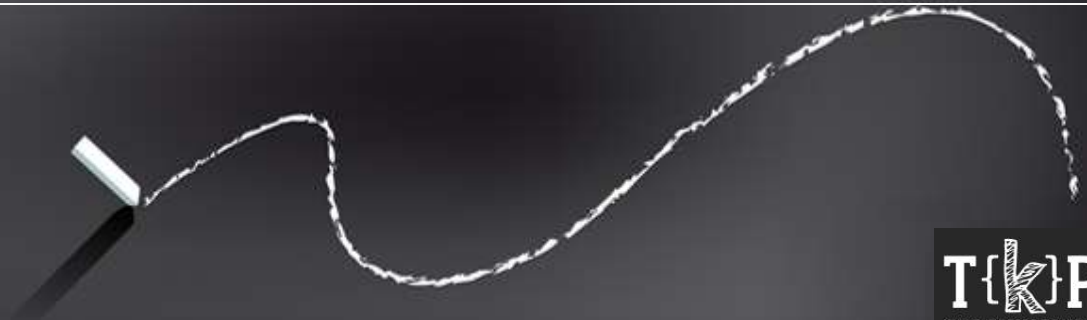
COURSE 8



Events and Listeners

```
public class Dolt
    implements MouseLeftClickListener {
    ...
    programWindow.addMouseLeftClickListener (this);

    public void onLeftMouseClicked(int x, int y) {
        //Do something when clicked
    }
}
```




```
public class FizzBuzz {  
    public String evaluate(int number) {  
        if (0 == number % 3) {  
            return "Fizz";  
        } else if (number == 5) {  
            return "Buzz";  
        }  
        return String.valueOf(number);  
    }  
}
```

COURSE 9



While Loops

```
while (x < 20) {
```

//Do something when true

```
}
```



Do...While Loops

```
do {
```

```
//Do something at least once
```

```
//Continue to do it while true
```

```
}
```

```
while (x < 20)
```



Unit Tests

@Test

```
public void testReturnsFizz( ) {  
    String result = FizzBuzz.convert(3);  
    //Verify expected vs. actual  
    assertEquals("fizz", result);  
}
```



ADDITIONAL MATERIAL



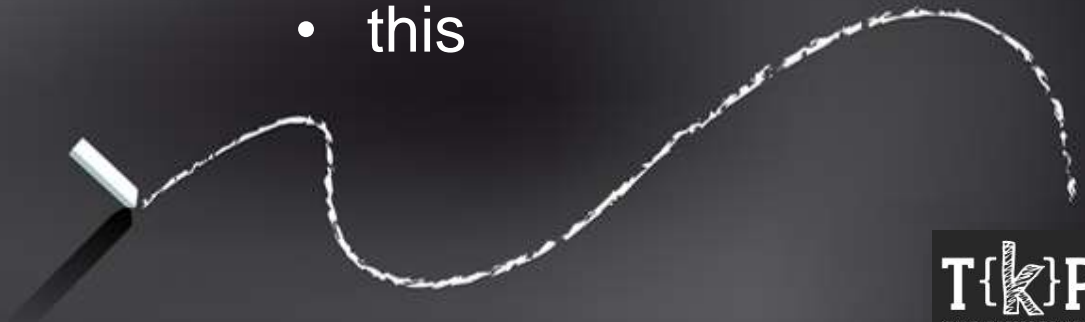
Java Keywords 1

Scope and Packages

- public
- private
- protected
- import
- package

Class and Methods

- abstract
- class
- new
- super
- static
- this



Java Keywords 2

Flow and Exceptions

- break
- do
- if
- else
- return
- while
- assert
- try, catch, finally
- throw, throws

Types

- boolean
- byte
- char, string
- enum
- int, double, float
- long, short



Java Regex Meta Characters

RegEx	More Info
<code>\d</code>	Any Digits 0-9
<code>\D</code>	Not digits 0-9
<code>\s</code>	Whitespace
<code>\S</code>	Any Character
<code>\w</code>	Any word
<code>\W</code>	Not word
<code>\b</code>	End of word
<code>\B</code>	Not end of word

