**Unit 2 cheat sheet**

**Classes**

**Defined the following way:**

public class NameOfClass

{

//fields – attributes of objects

private DataType nameOfFirstAttribute; //The datatype can be any data type – int, double, //Boolean, char, String etc.

private DataType nameOfSecondAttribute;

private DataType nameOfThirdAttribute; // define as many attributes as needed

//constructors

public NameOfClass(DataType theNameOfFirstAttribute, DataType theNameOfSecondAttribute, DataType theNameOfThirdAttribute)

{

this. nameOfFirstAttribute =theNameOfFirstAttribute;

this. nameOfSecondAttribute =theNameOfSecondAttribute;

this. nameOfThirdAttribute =theNameOfThirdAttribute;

}

//methods – functions that can be called in void main

//for example

public dataTypeOfFirstAttribute getFirstAttribute()

{

return this.nameOfFirstAttribute;

}

//main for testing

public static void main(String[] args)

{

NameOfClass nameOfNewObject= new NameOfClass(firstField, secondField, thirdField);

System.out.prinln(nameOfNewObject.getFirstAttribute());//will print the first attribute of object

}

}

**(for example on creating a class visit** [**https://runestone.academy/runestone/books/published/apcsareview/JavaBasics/firstOOClass.html**](https://runestone.academy/runestone/books/published/apcsareview/JavaBasics/firstOOClass.html) **)**

**String class**

**Constructing a string:**

* String s = new String(“one way of making a string”);
* String s = “second way of a making a string”;

**Key methods of the string class:**

* nameOfObject.charAt(*index*); //finds the character at index in the object nameOfObject

//for example. If String S=”example”; S.charAt(2) will find the ‘a’ in the word example

* nameOfObject.substring(*ined1,index2);* //finds the characters between index1 and index2

//for example. If String S=”example”; S.substring(2,4) will find the string of characters ‘am’

* nameOfObject.length(); //finds the length of nameOfObject

//for example. If String S=”example”; S.length() will equal 7

* nameOfObject.indexOf(“*string*”); //finds where the thr first index of the word string is in the //object nameOfObject. For example, if nameOfObject = “example string”; the method will //return 8 as the word string starts at the 8th index in the literal “example string”
* nameOfObject.equals(*anotherObject*);// checks if nameOfObject and anotherObject are the //same. For example. If String a =”example”; and String b=”example”; than a.equals(b); will //return True
* nameOfObject.contains(*string or anotherObject*); //checks if nameOfObject contains the //string in the parenthesis. For example, if String a =”example”; and you call //a.contains(“ample”); the method will return a True value as ‘ample’ is contained with in //the word ‘example’

\*The String class has many more methods. Please read the java documentation to explore more methods. <https://docs.oracle.com/en/java/javase/11/docs/api/java.base/java/lang/String.html>

**Math Class**

**\* Math is a static class, no need to construct an object**

**Key methods of the math class:**

* Math.Rand() //returns a random number between 0.00 and 0.99
* Math.Rand()\**number* // returns a random number between 0 and *number*

//*number* can be any integer, if *number* 5 than the method will return a number between 0 //and 4. Return value will be double. Casting to int might be needed if you want a whole //number

* Math.Rand()\**number* + *numberII*;// retrurns a random number between *numberII* and

// *number+numberII,*  for example, if *number* is 2 and *numberII* is 5 than we will get a

// number between 5 and 7

\*The Math class has many more methods. Please read the java documentation to explore more methods. https://docs.oracle.com/en/java/javase/11/docs/api/java.base/java/lang/Math.html