Cheatography

Java Midterm Cheat Sheet

by sefergus via cheatography.com/31341/cs/9489/

String Methods

.toUpperCase()	.equals(str)
.toLowerCase()	.indexOf(e)
.substring(i,j) *j is excluded*	.concat(str)
.length()	.charAt(i)
.compareTo(str)	.contains(e)

Integer.parseInteger(intString)

Double.parseDouble(doubleString)

```
import java.util.Scanner;
Scanner input= new Scanner(System.in);

Scanner Methods:
.nextLine() ends with line
.next() ends with white space
.nextDouble()
.nextInt()
```

Naming

keywords	lowercase	rule
variables	camelCase	convention
constants	ALL_CAPS	rule
class names	CamelCase	convention

Math Methods

Math.pow(a, b)	Math.PI()
Math.log(x), Math.log10(x)	Math.sqrt(x)
Math.floor *rounds down*	Math.ceil() *rounds up*
Math.random()	Math.min(), Math.max()

```
import java.lang.Math;

has sin, cos, tan, toRadians, toDegree, asin, acos, atan

low + Math.random()* high (non-inclusive)
```

Escape Sequences

\t	tab
\n	newline
\"	double quote
\\	backslash

Date Class

```
jav.util.Date date= new java.util.Date;
date.toString();
```

Point2D Class

```
import java.geometry.Point2D;
Point2D variable = new Point2D(x, y);
```

Objects

no variable constructor	Circle() { }
constructor	Circle (double radius) { this.radius=radius;}
getter	double getArea() { return 2 x radius x radius x Math.PI; }
setter	void setRadius(double radius) { this.radius=radius;}
instanceof	tests whether an object is an instance of a class
super();	calls no arg constructor of superclass
super(arg);	calls matching arg constructor of superclass

Objects (cont)

array of objects	for (int i, i<thing.length, i++) array[i]= new Thing(param);}

```
"this.radius" is an instance variable, as is the original data field
"radius" is the local variable

constructors must have same name as class
constructors do not have a return type, not even void
constructors are invoked using the new operator when an object is created
default constructor goes to class with no other constructors defined
```

Abstract Classes and Interfaces

Abstract Classes	Interfaces
cannot use "new"	only has abstract methods
methods have no body	no constructors
mix of abstract/non-abstract methods	"implements"
"extends"	contains constants

has constructors

contains contacts and variables

```
public abstract class ClassName {

java.lang.Comparable
public interface comparable <E>{
   public int compareTo(E o); }
     returns -1 for less than, 0 for equals,
     1 for greater than

java.lang.Cloneable
public interface clonable {}
     use .clone()
```

Loops

while	int x=n; while (x>1) { change x; }
for	for (int i, i<variable, i++){
for each (arrays)	for (int i: list){
boolean	(boolean ? true : false)

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Characters

.isDigit(ch)	.isLetter(ch)
.isLowerCase(ch), .isUpperCase(ch)	.toLowerCase(ch), .toUppercase(ch)

ArrayList Methods

create	ArrayList<type> name = new ArrayList<type>();
access element	list.get(i)
update element	list.set(i, e)
return size	list.size()
add element	list.add((i), e)
remove element	list.remove(i or e)
remove all elements	list.clear()

import java.util.ArrayList;

Important methods

```
modifier returnValueType methodName(params){
```

```
public Class ClassName{
  public static void main (String[] args)
```

```
Scanner input= new Scanner(System.in)
```

```
System.out.println(line);
```

```
public static type name (type param){
  return type; }
```

```
public boolean equals (Object o){
  if (o instance Person){
     Person p= (Person) o;
     return this.name.equals(p.getName()));
  }else{
    return false;
  }
}
```

```
public String toString(){
  return "String";}
```

to use a method from a different class: Class.method(var);

Array methods

java.util.Arrays.sort(array)	.length
java.util.Arrays.equal(a1, a2)	*if corresponding elements are the same*
Arrays.toString(array)	.reverse()
array[i]	array[i]=e

import java.util.Arrays;
int[] values= new int[10]
default values: 0, /u0000, or false
printing gives reference
methods can modify arrays
import java.util.Arrays;
multi-dimensional arrays: arrays of arrays.

```
elementType [rows][columns]
arrayVar
```

Vocabulary

composition	information belongs to one object
association/segregation	information can belong to many objects
public visibility	can be seen anywhere in any package
private visibility	can be seen within class
protected visibility	in package and subclasses of this in any package
runtime error	crash
compile error	doesn't run
final static	constant modifier
byte	8 bits*
block comment	/* ... */
line comment	//
javadoc comments	/** ... */
break;	breaks out of a loop
continue;	stays in loop
variable declaration	creating a variable with its type

Vocabulary (cont)

static	shared by all instances of a class
relational operator	<, <=, ==, !=, >, >=
logical operator	!, &&, || (*inclusive*), ^ (*exclusive*)
Numeric Types (in order)	byte, short, int, long, float, double
Variable Scope	variables only exist within {}
assignment operators	=, +=, -=, *=, /=, %=
operators	+, -, %, / (*truncates for int*)
increment/ decrement operators	++, --
instance method	a method that can only be invoked from a specific object
local variable	within a method
instance variable	dependent on the specific instance (class)
overloading methods	methods can have the same name as long as their method signatures are different

binary operators are left-associative, assignment operators are right associative

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