



North South University

Department of Electrical and Computer Engineering

CSE 215L: Programming Language II Lab

Lab Manual - 10

Lab Instructor: Taif Al Musabe

Objective:

- To understand inheritance
- To understand polymorphism

Lab Task:

<table><tr><th>Pet</th></tr><tr><td>- name: String - color: String</td></tr><tr><td>/* constructor */ /* accessor-mutator */ /* toString */ + String Sound() // return nil</td></tr></table>	Pet	- name: String - color: String	/* constructor */ /* accessor-mutator */ /* toString */ + String Sound() // return nil	<table><tr><th>Dog extends Pet</th></tr><tr><td>/* constructor */ /* toString */ + String Sound()//return "woof woof"</td></tr></table>	Dog extends Pet	/* constructor */ /* toString */ + String Sound()//return "woof woof"
Pet						
- name: String - color: String						
/* constructor */ /* accessor-mutator */ /* toString */ + String Sound() // return nil						
Dog extends Pet						
/* constructor */ /* toString */ + String Sound()//return "woof woof"						
<table><tr><th>Cat extends Pet</th></tr><tr><td>/* constructor */ /* toString */ + String Sound()//return "meow meow"</td></tr></table>	Cat extends Pet	/* constructor */ /* toString */ + String Sound()//return "meow meow"	<table><tr><th>Rabit extends Pet</th></tr><tr><td>/* constructor */ /* toString */ + String Sound()//return "squeak squeak"</td></tr></table>	Rabit extends Pet	/* constructor */ /* toString */ + String Sound()//return "squeak squeak"	
Cat extends Pet						
/* constructor */ /* toString */ + String Sound()//return "meow meow"						
Rabit extends Pet						
/* constructor */ /* toString */ + String Sound()//return "squeak squeak"						

In main method, create a 6-size array of Pet object. After that create two objects of each child class of Pet class and assign them into the array. Then generate a random index number to pick a pet object from the array. Now show the sound and name that pet.

Homework:

<table><tr><th>Plant</th></tr><tr><td><ul style="list-style-type: none">- name: String- color: String</td></tr><tr><td><pre>/* constructor */ /* accessor-mutator */ /* toString */</pre></td></tr></table>	Plant	<ul style="list-style-type: none">- name: String- color: String	<pre>/* constructor */ /* accessor-mutator */ /* toString */</pre>	<table><tr><th>Flower extends Plant</th></tr><tr><td><ul style="list-style-type: none">- hasSmell: boolean- hasThorn: boolean</td></tr><tr><td><pre>/* constructor */ /* accessor-mutator */ /* toString */</pre></td></tr></table>	Flower extends Plant	<ul style="list-style-type: none">- hasSmell: boolean- hasThorn: boolean	<pre>/* constructor */ /* accessor-mutator */ /* toString */</pre>
Plant							
<ul style="list-style-type: none">- name: String- color: String							
<pre>/* constructor */ /* accessor-mutator */ /* toString */</pre>							
Flower extends Plant							
<ul style="list-style-type: none">- hasSmell: boolean- hasThorn: boolean							
<pre>/* constructor */ /* accessor-mutator */ /* toString */</pre>							
<table><tr><th>Herb extends Plant</th></tr><tr><td><ul style="list-style-type: none">- isMedicinal: boolean- season: String</td></tr><tr><td><pre>/* constructor */ /* accessor-mutator */ /* toString */</pre></td></tr></table>	Herb extends Plant	<ul style="list-style-type: none">- isMedicinal: boolean- season: String	<pre>/* constructor */ /* accessor-mutator */ /* toString */</pre>				
Herb extends Plant							
<ul style="list-style-type: none">- isMedicinal: boolean- season: String							
<pre>/* constructor */ /* accessor-mutator */ /* toString */</pre>							

In main method, create an array of Plant objects and implement these methods: static void add(Plant [] plants, Plant p) // to add new plant object into the array static void remove(Plant [] plants, String n) // remove a plant given its name static Plant search(Plant [] plants, String n) // search for a plant given its name static void display(Plant [] plants) // display all Plant objects