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Modules.java

```
//Modules Class
public class Modules {
	//instance variables
	private String title;
	private String code;

	//Overload Constructor
	public Modules(String Title, String Code) {
		this.title = Title;
		this.code = Code;
	}

	//Get methods
	public String getTitle() {
		return this.title;
	}

	public String getCode() {
		return this.code;
	}

	//toString override
	public String toString() {
		return "Module Title: "+this.getTitle()+". Module Code:
"+this.getCode()+".";
	}
}
```

Programmes.java

```
//Programmes Class
public class Programmes {
	//Instance variables
	private String title;
	private String code;

	//Overload Constructor
	public Programmes(String Title, String Code) {
		this.title = Title;
		this.code = Code;
	}

	//Get methods
	public String getTitle() {
		return this.title;
	}

	public String getCode() {
		return this.code;
	}
```

```
	//toString override
	public String toString() {
		return "Program Title: "+this.getTitle()+". Program Code:
"+this.getCode()+".";
	}
}
```

University.java

```
//Import Arraylist
import java.util.ArrayList;

//University Class
public class University{

	//Instance variables
	private ArrayList<Venue> venues;
	private ArrayList<Modules> modules;
	private ArrayList<Programmes> programmes;

	//Constructor
	public University() {
		this.venues = new ArrayList<Venue>();
		this.modules = new ArrayList<Modules>();
		this.programmes = new ArrayList<Programmes>();
	}

	//Add, remove, and get methods for Venue list
	public void addVenues(Venue venue) {
		this.getVenues().add(venue);
	}

	public void removeVenues(Venue venue) {
		this.getVenues().remove(venue);
	}

	public ArrayList<Venue> getVenues(){
		return this.venues;
	}

	//Add, remove, and get methods for Modules list
	public void addModules(Modules module) {
		this.getModules().add(module);
	}

	public void removeModules(Modules module) {
		this.getModules().remove(module);
	}

	public ArrayList<Modules> getModules(){
		return this.modules;
	}

	//Add, remove, and get methods for Programmes list
	public void addProgrammes(Programmes program) {
		this.getProgrammes().add(program);
	}
```

```
	public void removeProgrammes(Programmes program) {
		this.getProgrammes().remove(program);
	}

	public ArrayList<Programmes> getProgrammes(){
		return this.programmes;
	}

	//toString override
	public String toString() {
		return "Number of Venues: "+this.getVenues().size()+". Number of
Modules: "+this.getModules().size()+". Number of Programmes:
"+this.getProgrammes().size()+".";
	}

	//Venue class
	class Venue {
		//Instance variables
		String name;
		int capacity;

		//Overload Constructor
		public Venue(String Name, int Capacity) {
			this.name = Name;
			this.capacity = Capacity;
		}

		//get methods
		public String getName() {
			return this.name;
		}

		public int getCapacity() {
			return this.capacity;
		}

		//toString override
		public String toString() {
			return "Venue Name: "+this.getName()+". Venue Capacity:
"+this.getCapacity()+".";
		}
	}
}
```

ModulesTest.java

```
//import junit modules

import static org.junit.Assert.*;

import org.junit.Before;

import org.junit.After;

import org.junit.Ignore;
```

```
import org.junit.Test;

//Modules Test Class
public class ModulesTest {

	//Variable
	public Modules module;

	//Before and After Test methods
	@Before
	public void setup() {
		module = new Modules("OOP3","CT3535");
	}

	@After
	public void setUp() {
		module = null;
	}

	//Constructor Test
	@Test
	public void testModules() {
		assertNotNull(module);
		assertEquals(module.getTitle(),"OOP3");
		assertEquals(module.getCode(),"CT3535");
	}
```

```
	//toString Test
	//@Ignore
	@Test
	public void testToString() {
		assertEquals(module.toString(),"Module Title: OOP3. Module Code: CT3535.");
	}

}
```

ProgrammesTest.java

```
//import junit modules
import static org.junit.Assert.*;

import org.junit.Test;
import org.junit.Before;
import org.junit.After;
import org.junit.Ignore;

//Programmes Test Class
public class ProgrammesTest {

	//variable
	public Programmes program;

	//Before and After Test methods
	@Before
	public void setup() {
```

```
		program = new Programmes("Science","GY301");
	}

	@After
	public void setUp() {
		program = null;
	}

	//Test Constructor
	@Test
	public void testProgrammes() {
		assertNotNull(program);
		assertEquals(program.getTitle(),"Science");
		assertEquals(program.getCode(),"GY301");
	}
	//Test toString
	//@Ignore
	@Test
	public void testToString() {
		assertEquals(program.toString(),"Program Title: Science. Program Code: GY301.");
	}
}
```

VenueTest.java

```
//import junit Modules
import static org.junit.Assert.*;
import org.junit.Ignore;
```

```
import org.junit.After;
import org.junit.Before;
import org.junit.Test;

//Venue Test Class
public class VenueTest {

	//Variables
	public University university;
	public University.Venue venue;

	//Before and After Test methods
	@Before
	public void setup() {
		university = new University();
		venue = university.new Venue("AM150",150);
	}

	@After
	public void setUp() {
		university = null;
		venue = null;
	}

	//Test constructor
	@Test
	public void testVenue() {
```

```
		assertNotNull(venue);
		assertEquals(venue.getName(),"AM150");
		assertEquals(venue.getCapacity(),150);
	}

	//Test toString
	//@Ignore
	@Test
	public void testToString() {
		assertEquals(venue.toString(),"Venue Name: AM150. Venue Capacity: 150.");
	}
}
```

UniversityTest.java

```
//import junit Modules
import static org.junit.Assert.*;
import org.junit.Before;
import org.junit.After;
import org.junit.Ignore;
import org.junit.Test;

//University Test Class
public class UniversityTest {

	//variables
	public Modules module;
	public Programmes program;
```

```
public University university;
public University.Venue venue;

//Before and After test methods
@Before
public void setup() {
	module = new Modules("OOP3","CT3535");
	program = new Programmes("Science","GY301");
	university = new University();
	venue = university.new Venue("AM150", 150);
}

@After
public void setup1() {
	module = null;
	program = null;
	university = null;
	venue = null;
}

//Constructor test
@Test
public void testUniversity() {
	assertNotNull(university);
	assertNotNull(university.getModules());
	assertNotNull(university.getProgrammes());
	assertNotNull(university.getVenues());
```

```
}

//Venue ArrayList test
@Test
public void testVenueList() {
	assertNotNull(university.getVenues());
	assertEquals(university.getVenues().size(),0);
	university.getVenues().add(venue);
	assertEquals(university.getVenues().size(),1);
	university.getVenues().remove(venue);
	assertEquals(university.getVenues().size(),0);
}

//Modules ArrayList test
@Test
public void testModulesList() {
	assertNotNull(university.getModules());
	assertEquals(university.getModules().size(),0);
	university.getModules().add(module);
	assertEquals(university.getModules().size(),1);
	university.getModules().remove(module);
	assertEquals(university.getModules().size(),0);
}

//Programmes ArrayList test
@Test
public void testProgrammesList() {
```

```
		assertNotNull(university.getProgrammes());
		assertEquals(university.getProgrammes().size(),0);
		university.getProgrammes().add(program);
		assertEquals(university.getProgrammes().size(),1);
		university.getProgrammes().remove(program);
		assertEquals(university.getProgrammes().size(),0);
	}

	//toString test
	//@Ignore
	@Test
	public void testToString() {
		assertEquals(university.toString(),"Number of Venues: 0. Number of Modules: 0. Number of Programmes: 0.");
	}

}
```

TestSuite.java

```
//import junit modules
import org.junit.runner.RunWith;
import org.junit.runners.Suite;
import org.junit.runners.Suite.SuiteClasses;

//include ProgrammesTest, ModulesTest, VenueTest, and UniversityTest
@RunWith(Suite.class)
@SuiteClasses({ProgrammesTest.class, ModulesTest.class, VenueTest.class, UniversityTest.class})
```

//TestSuite class

public class TestSuite{

}