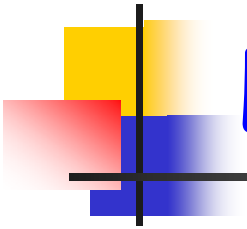
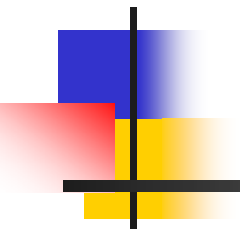
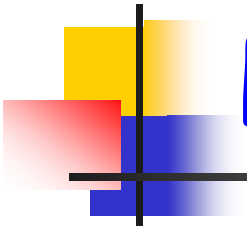


Lecture6

- Packages
- Use of debugger



Packages



Packages

- A way of grouping different (related) classes in Java.
- Java itself provides many packages
  - E.g. Math, I/O, Exception, etc.
- Packages are used to provide
  - Access restrictions
  - Namespace management

How to create packages

- Simply put "package" in the beginning of a class (should be the first line).

```
package example_package
 class myClass1
{
        // Code
}

package example_package
 class myClass2
{
        // Code
}
```

- myClass1 and myClass2 are now part of example_package
- A package typically has many classes.

Creating packages example

```
package graphics;
public interface Draggable { . . . }

package graphics;
public abstract class Graphic { . . . }

package graphics;
public class Circle extends Graphic implements Draggable { . . . }

package graphics;
public class Rectangle extends Graphic implements Draggable { . . . }

package graphics;
public class Point extends Graphic implements Draggable { . . . }
```

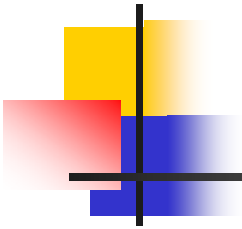
Source: oracle.com

Using classes from external packages

- Use **import** keyword.
  - Can import the entire package. E.g.,
    - import java.lang.*;
    - import mypackage.*;
  - Or, can import specific classes in a package
    - import mypackage.myclass;

- E.g. Use math functions.

```
import java.lang.math;
public class myClass
{
   public double computeArea (int r)
    {
            return ( math.PI * r * r);
     }
}
```



Packages … contd.

- Packages can be created, included in a hierarchical way
  - E.g., com. mycompany.mypackage
    - Package from mycompany
  - com.anothercompany.package
    - Package from anothercompany.
  - They can be included as
    - import com.mycompany.mypackage
    - import com.anothercompany.mypackage