Local Variable Dependency - UML

Local Variable Dependency - Code

```java
public class A {
    public A() {
        B b = new B();
        // Code...
    }
}
```
Local Variable Dependency - Reason

- One object needs to create another
- Need a local variable to hold the instance

Instantiation Dependency - UML
Instantiation Dependency - Code

```java
public class Foo {
    public Foo () {
        new Bar();
    }
}
```

Instantiation Dependency - Reason

- Need to create an instance
- No local variable needed

* Creating listeners
Composition - UML

![UML Diagram](image)

Composition - Code

```java
public class Bot {
    private Cot _cot;
    
    public Bot () {
        _cot = new Cot();
    }
}
```
Composition - Reason

- Need to create an instance
- Need the instance variable because multiple methods need to refer to the same object

Lab 4: drawing canvas

Association - UML
Association - Code

```java
public class Dog {
    private Cat peskyCat;
    public Dog (Cat cat) {
        peskyCat = cat;
    }
}
```

Association - Reason

One object needs to communicate with another object that already exists in the system.
Realization - UML

Realization - Code

```java
public class Foo implements Fooable {
    public Foo ( ) {
        // Code implementation
    }
}
```
Realization - Reason

(For now)

It's because the library told me I had to

Last problem

• The steps to create a JButton that changes the color of the background of a drawing canvas to a random color.
Last problem

- Create new instance of a JButton
- Add an action listener to the JButton
- Add the button to the container that will put it on the JFrame

Last problem

- What does the action listener for the button do?
  - It changes the color of the drawing canvas
Last problem

• How do we accomplish that?
  – We need to be able to call setColor on the drawing canvas
  – But, we can not directly access the drawing canvas from the listener class
  – We need an association relationship between the listener and drawing canvas