

Java Recap

CS101

NIFR 2023

Java Concepts

Fundamentals

- Object Orientation
- Private or Public
- Methods != Functions
- Static
- Inheritance
- Return value

Attributes

Methods



Price, weight, type

turnOn/turnOff

Classes/Object

 <p>Poul Madsen overhørte advarsler: Brutal leder på Ekstra Bladet gav ansatte ondt i maven i årevis</p> <p>MEDIER P B</p>	 <p>5 vigtige detaljer du skal kende, før du anmoder om dine feriepenge</p> <p>PRIVATØKONOMI P B</p>	 <p>Frankrigs jungle: »Jeg vil vise dig et sted. Du vil ikke tro det, når du ser det«</p> <p>INTERNATIONALT P B</p>	 <p>5 hjerter: Det handler ikke om alkohol eller kvindeligt selskab. Det handler om noget, der er værre. Ingenting</p>
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```
public class FrontPage{  
    private ArrayList<Article> articles;  
    private ArrayList<Advertisements> ads;  
    ...  
}
```

Contains



```
public class Article{  
    private String headline;  
    private String author;  
    private String category;  
    private boolean isOnFrontPage;  
}
```

Modifiers **Private** **Public**



`ArrayList<Lamp> = new ArrayList<Lamp>();`

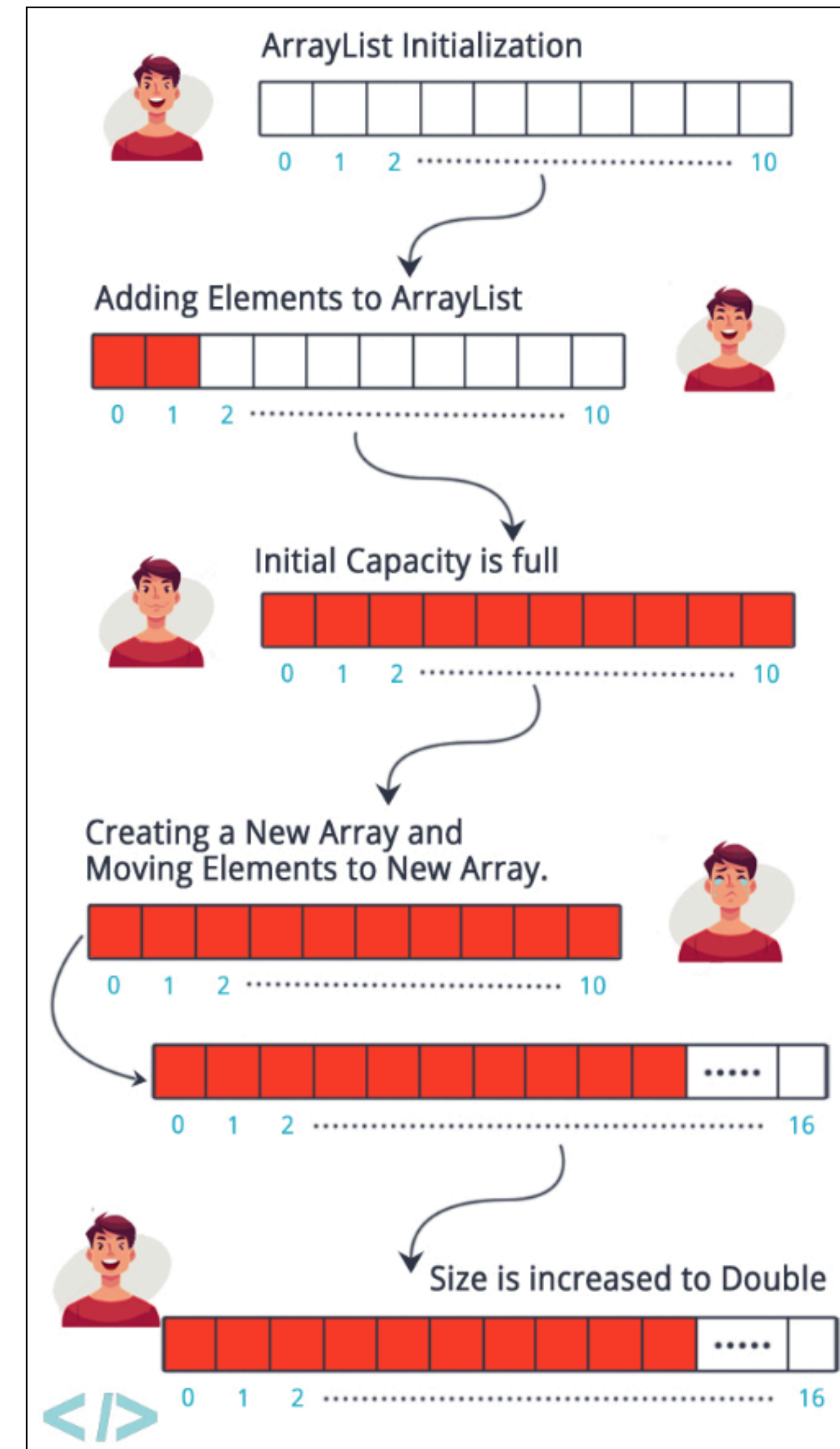


ArrayList

ImplementationADT

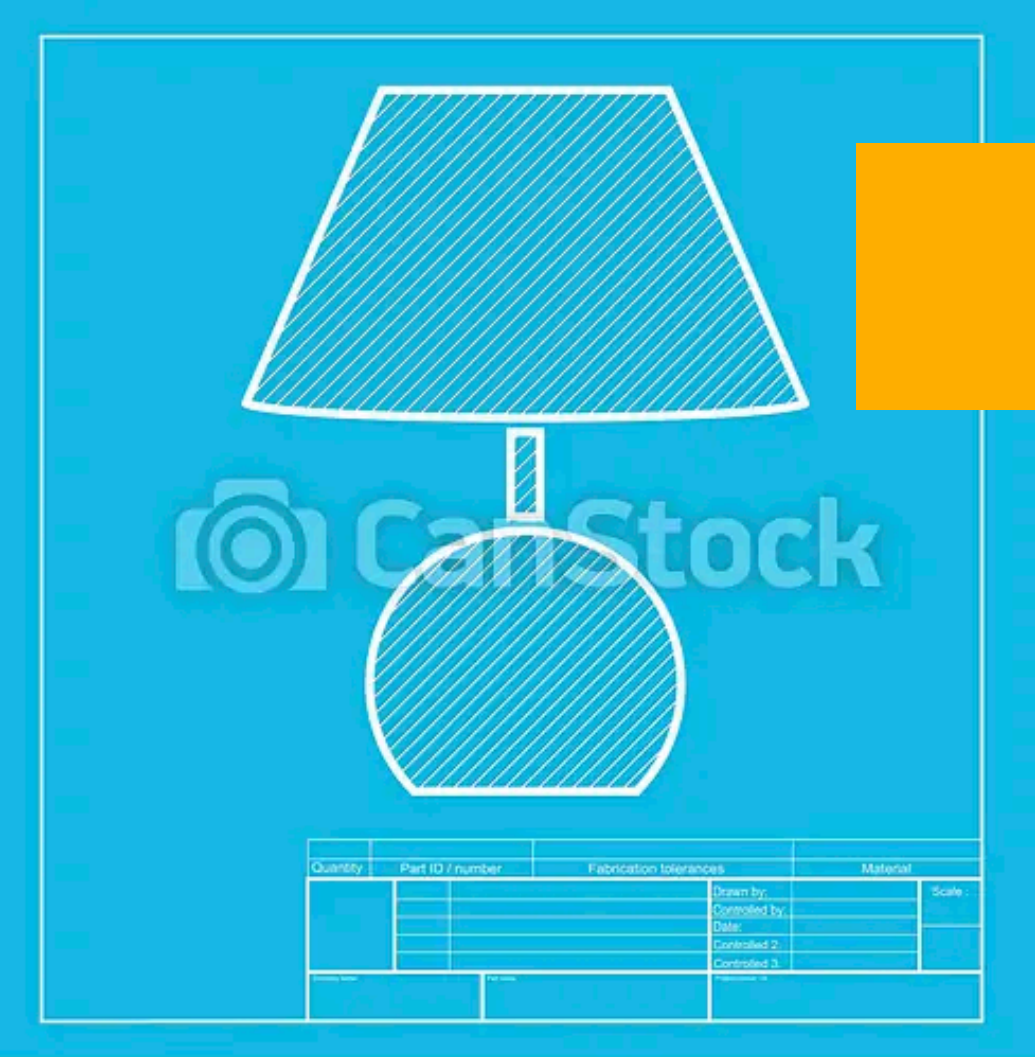
```
private Object[] grow(int minCapacity) {  
    int oldCapacity = elementData.length;  
    if (oldCapacity > 0 || elementData != DEFAULTCAPACITY_EMPTY_ELEMENTDATA) {  
        int newCapacity = ArraysSupport.newLength(oldCapacity,  
            minGrowth: minCapacity - oldCapacity, /* minimum growth */  
            oldCapacity >> 1 /* preferred growth */);  
        return elementData = Arrays.copyOf(elementData, newCapacity);  
    } else {  
        return elementData = new Object[Math.max(DEFAULT_CAPACITY, minCapacity)];  
    }  
}
```

From ArrayList



A lamp example

Static keyword



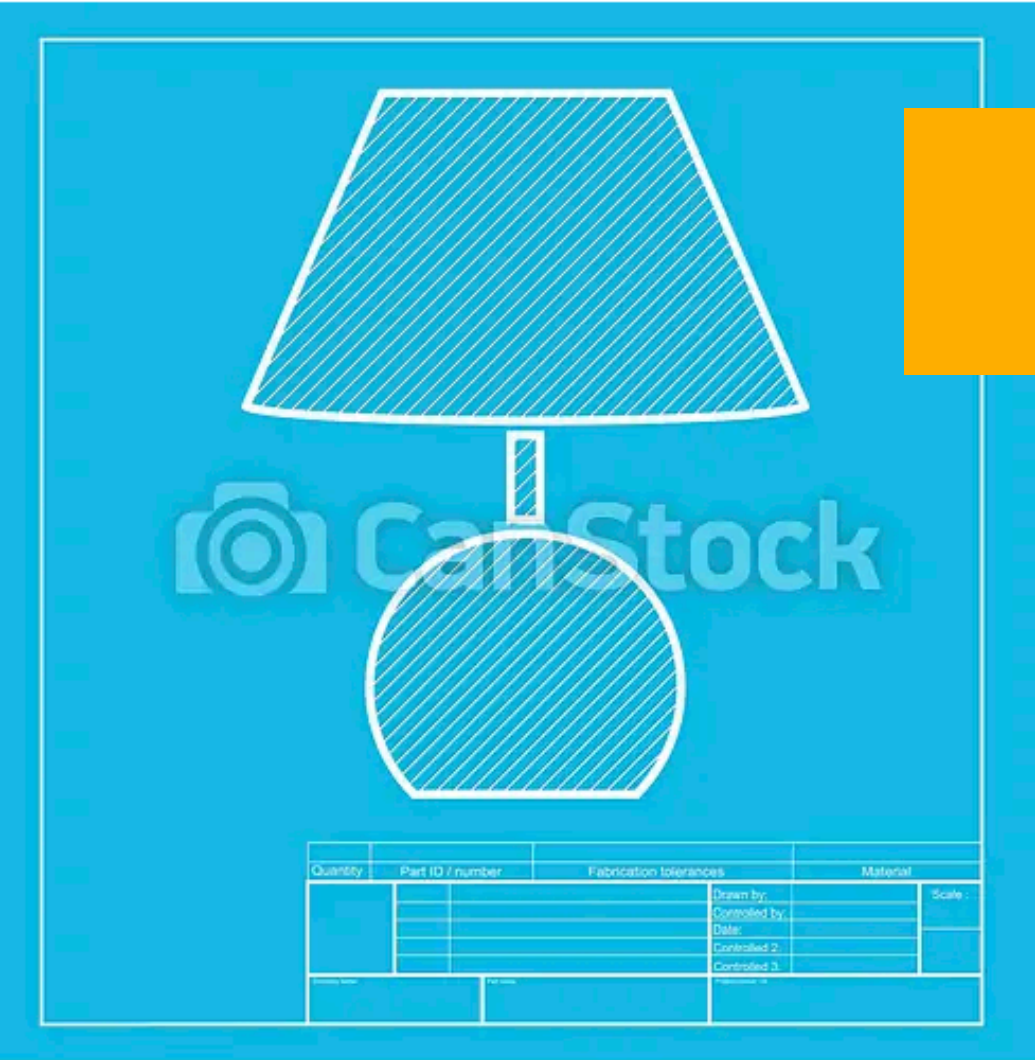
Class



Objects

How many lamps in exists ?

Product number



Static



Instance

Color
Size
On/off

Color
Size
On/off

Color
Size
On/off

Color
Size
On/off

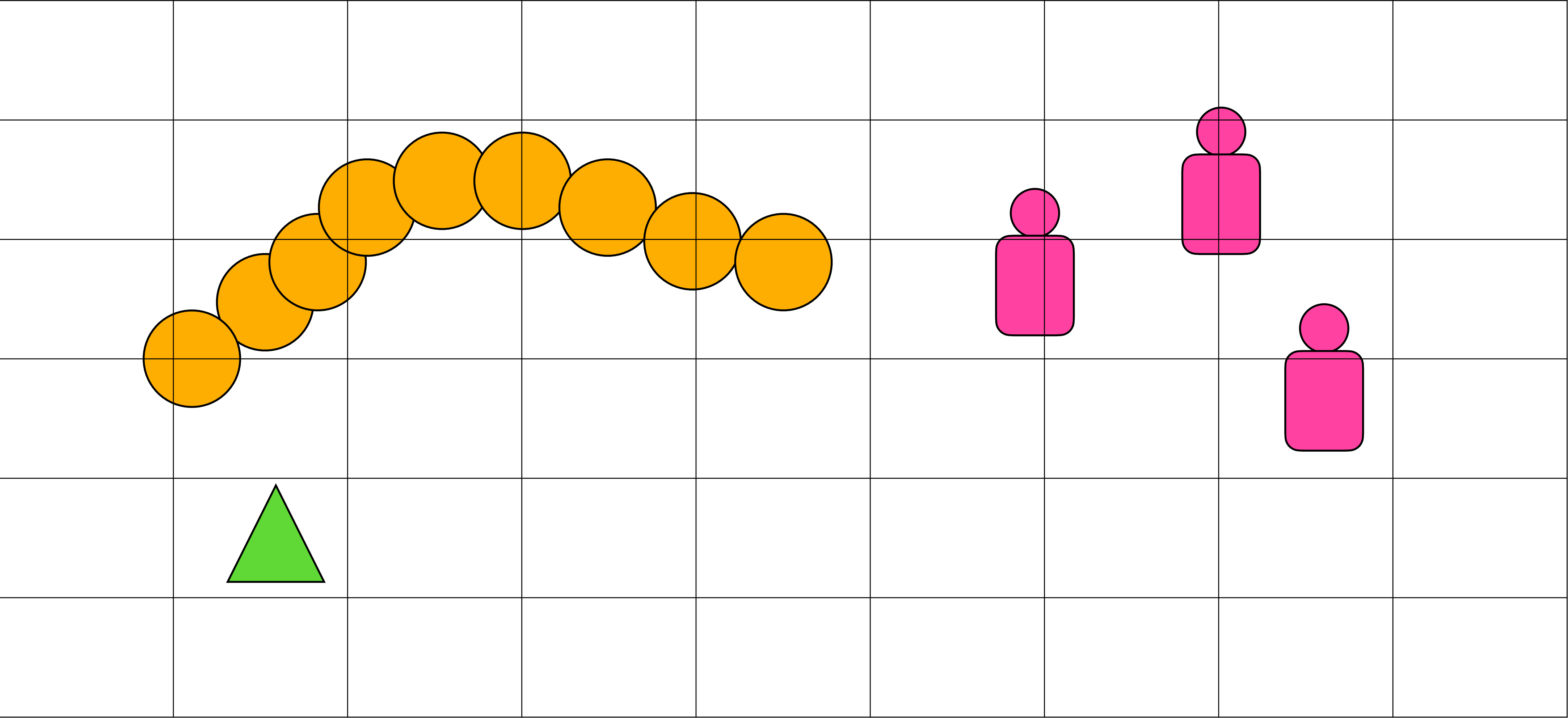
Color
Size
On/off

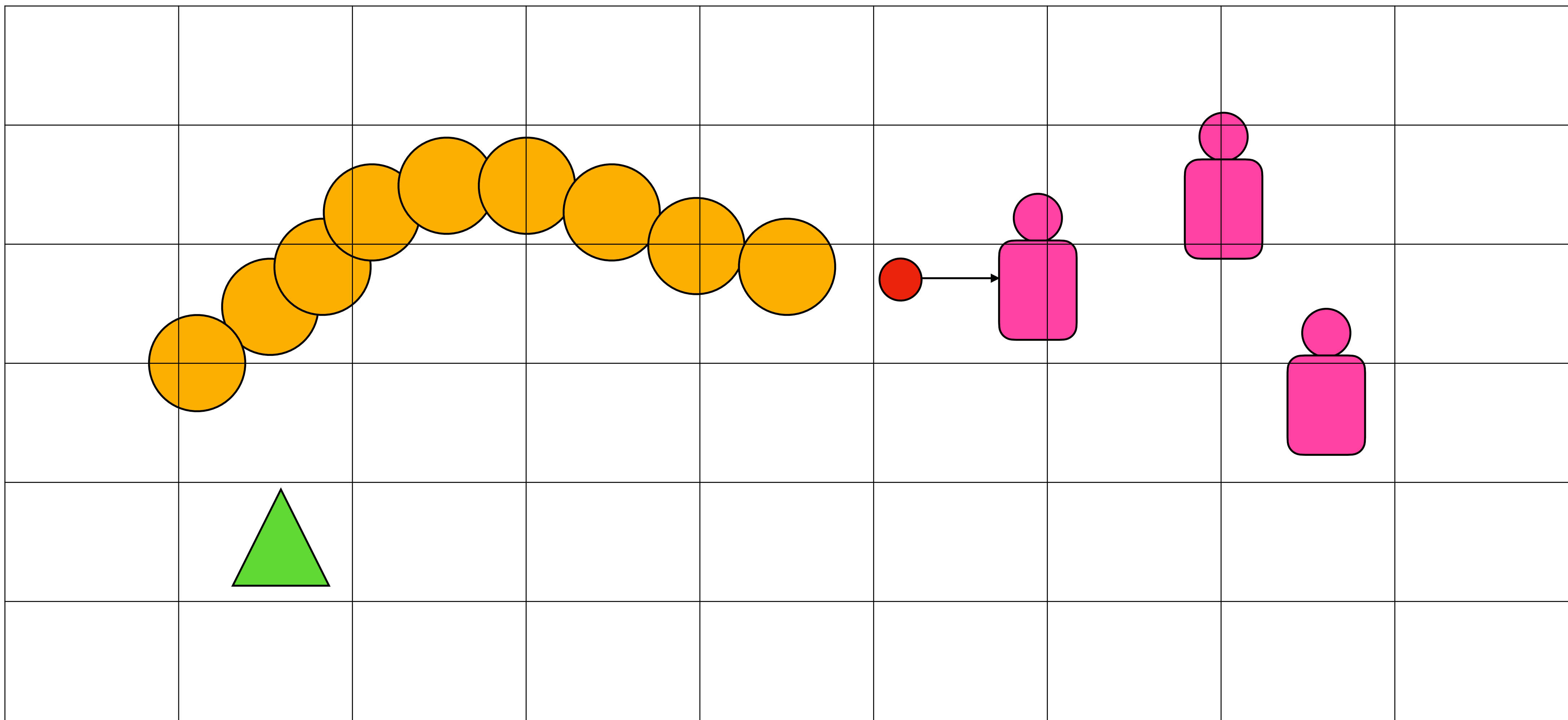
Color
Size
On/off

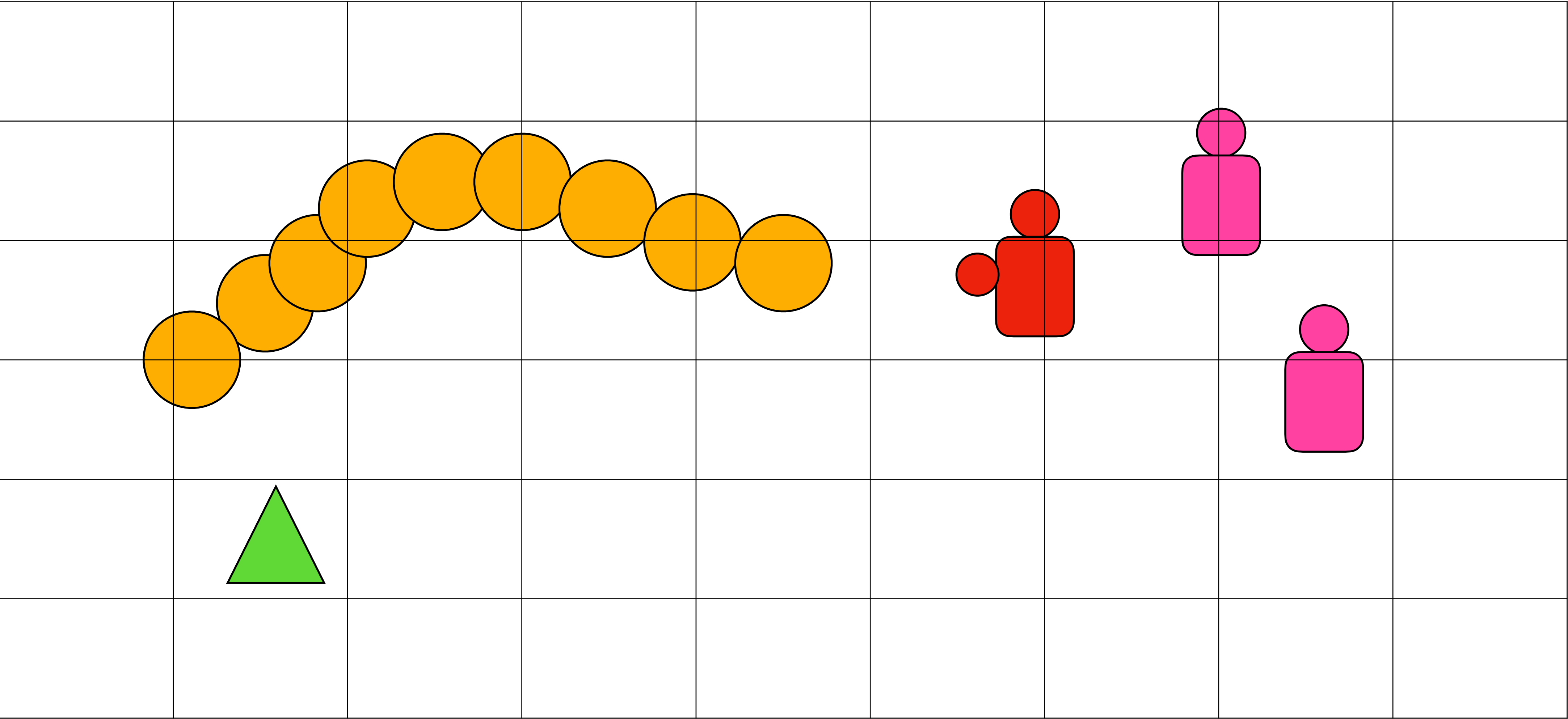
Inheritance

A class is a component







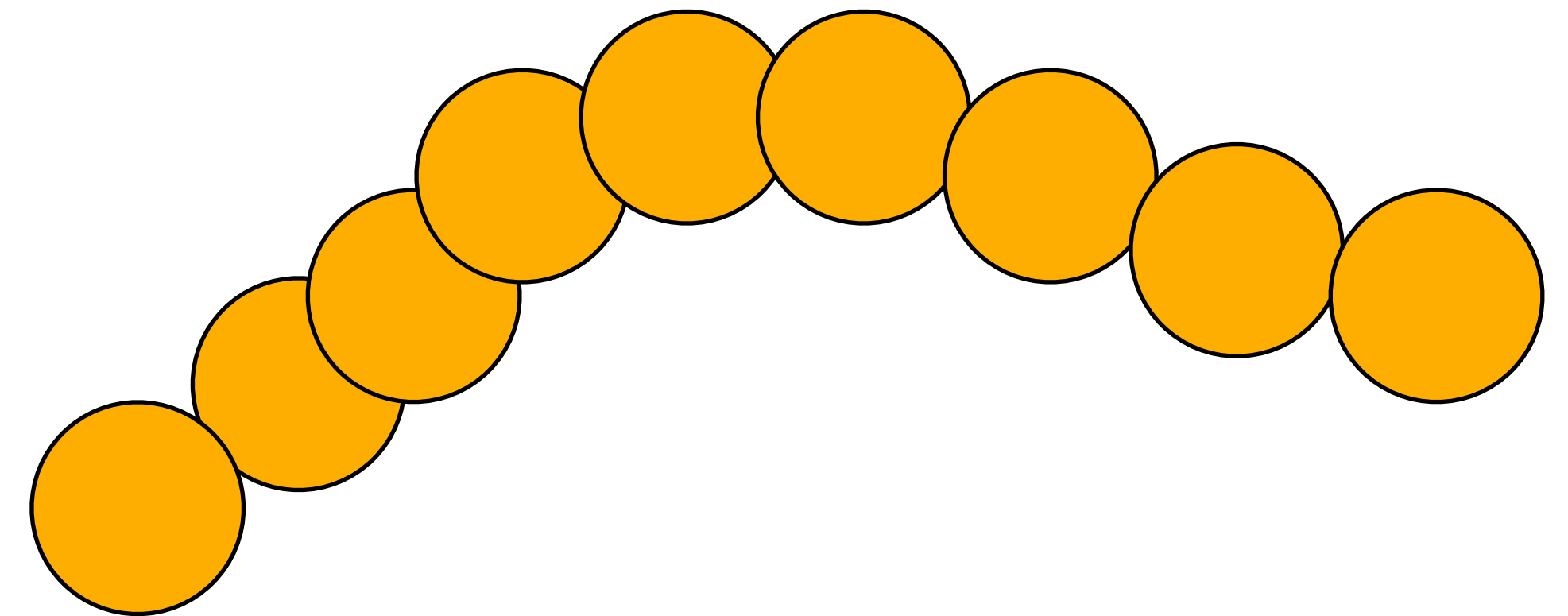
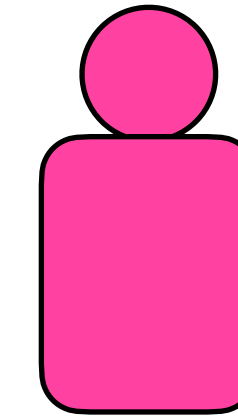
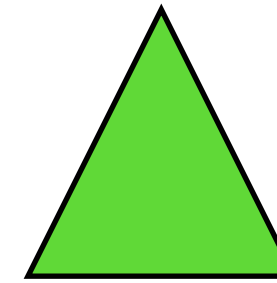


Collision detected -
Game Over

A Shape

Another Shape

Abstract Concrete



All shapes should be able to
calculate their perimeter & area

Abstract classes

- Cannot be instantiated
 - You cannot make an object from an abstract classes
- Methods can be abstract
 - They have no method body -> Logic/actions are not implemented
- Are used as tools to specialisation via inheritance to concrete classes

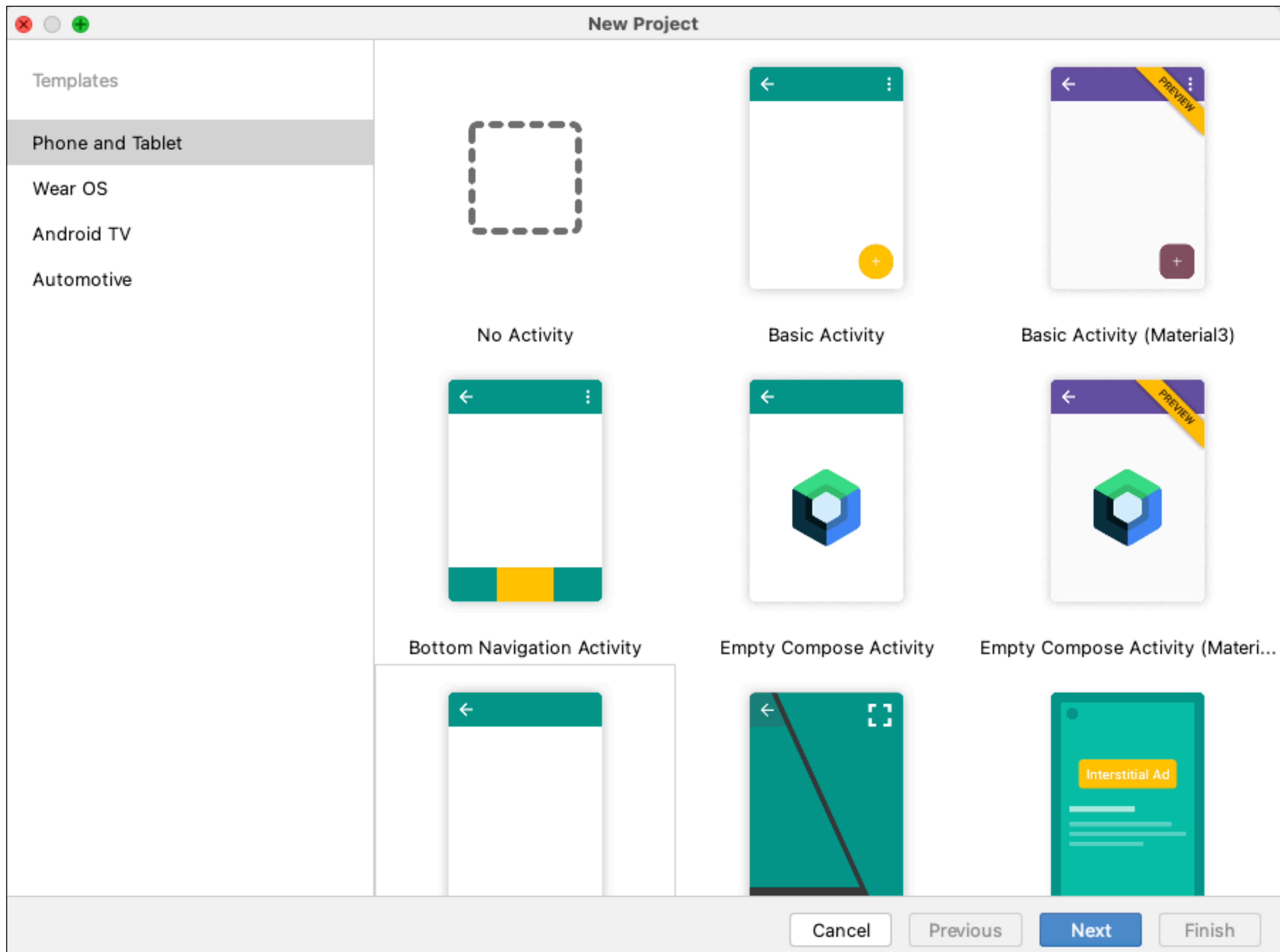
unit-test – MainActivity.java [unit-test.app.main]

unittest > app > src > main > java > com > example > unit_test > MainActivity

MainActivity.java x UserValidation.java x MainActivityTest.java x

Project
Commit
Pull Requests
Resource Manager
Structure

1 package com.example.unit_test;
2
3 import ...
4
5
6 public class MainActivity extends AppCompatActivity {
7
8 @Override
9 protected void onCreate(Bundle savedInstanceState) {
10 super.onCreate(savedInstanceState);
11 setContentView(R.layout.activity_main);
12 }
13 }
14
15



Return value