Arrays

EXTRA MATERIAL

covering

** why do we need arrays
** declaring, using and initialising arrays
** copying and printing arrays
** using methods with arrays
** Javadocs (recap)

Chapter 3 (section 3.10) – "Core Java" book
Chapter 3 – "Head First Java" book
Chapter 6 – "Introduction to Java Programming" book
Chapter 2 – "Java in a Nutshell" book

These slides are left as practice and self-study.

Another `Rabbit` test example (1/3)

```java
public class RabbitTest {
  public static void main(String[] args) {
    Rabbit[] racers = new Rabbit[2];
    racers[0] = new Rabbit();
    racers[0].setName("Bugs");
    racers[0].setFurType("Fluffy");
    racers[0].setSpeed(150);

    racers[1] = new Rabbit();
    racers[1].setName("Bunny");
    racers[1].setFurType("Long-haired");
    racers[1].setSpeed(145);

    racers[2] = new Rabbit();
    racers[2].setName("Bob");
    racers[2].setFurType("Shaggy");
    racers[2].setSpeed(120);

    for (int i = 0; i < racers.length; i++) {
      System.out.println(racers[i].getName() + " is a " +
        racers[i].getFurType() + " Rabbit that runs at " +
        racers[i].getSpeed() + " km/hr.");
    }
  }
}
```

Running the code throws this exception to the command line:
ArrayIndexOutOfBoundsException*

* Exception in thread "main"
java.lang.ArrayIndexOutOfBoundsException: 2
at rabbits.RabbitTest.main(RabbitTest.java:24)

Another `Rabbit` test example (2/3)

```java
public class RabbitTest {
  public static void main(String[] args) {
    Rabbit[] racers = new Rabbit[2];
    racers[0] = new Rabbit();
    racers[0].setName("Bugs");
    racers[0].setFurType("Fluffy");
    racers[0].setSpeed(150);

    racers[1] = new Rabbit();
    racers[1].setName("Bunny");
    racers[1].setFurType("Long-haired");
    racers[1].setSpeed(145);

    racers[2] = new Rabbit();
    racers[2].setName("Bob");
    racers[2].setFurType("Shaggy");
    racers[2].setSpeed(120);

    for (int i = 0; i < racers.length; i++) {
      System.out.println(racers[i].getName() + " is a " +
        racers[i].getFurType() + " Rabbit that runs at " +
        racers[i].getSpeed() + " km/hr.");
    }
  }
}
```
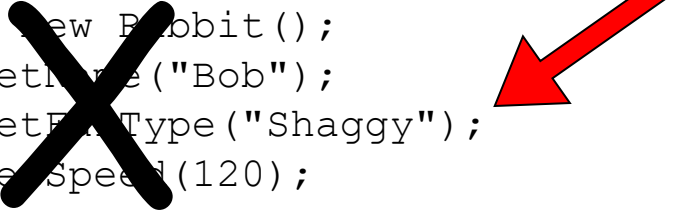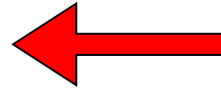
No array location for this **Rabbit**!

Another `Rabbit` test example (3/3)

```java
public class RabbitTest {
  public static void main(String[] args) {
    Rabbit[] racers = new Rabbit[3];
    racers[0] = new Rabbit();
    racers[0].setName("Bugs");
    racers[0].setFurType("Fluffy");
    racers[0].setSpeed(150);

    racers[1] = new Rabbit();
    racers[1].setName("Bunny");
    racers[1].setFurType("Long-haired");
    racers[1].setSpeed(145);

    racers[2] = new Rabbit();
    racers[2].setName("Bob");
    racers[2].setFurType("Shaggy");
    racers[2].setSpeed(120);

    for (int i = 0; i < racers.length; i++) {
      System.out.println(racers[i].getName() + " is a " +
        racers[i].getFurType() + " Rabbit that runs at " +
        racers[i].getSpeed() + " km/hr.");
    }
  }
}
```

Correct now!

Output?

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