Programming Fundamentals 1

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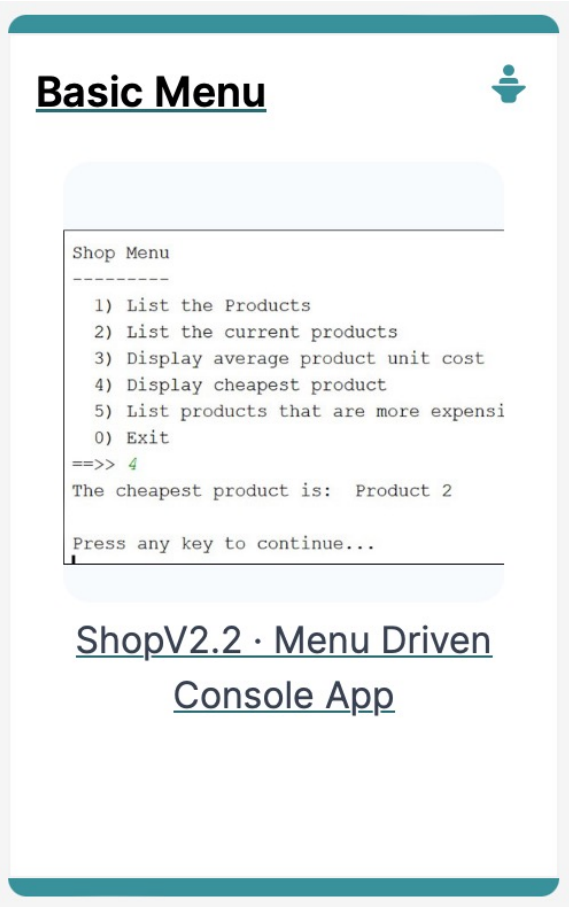
The `toString()` method

Why and How to use it



Why toString()

- What if we wish to print out the contents of an object?
- We could just use getters wherever we need to access the values?
- We have a better way…
- `toString()`

toString()

- We will start to write a toString() method for each class.
  - It will be public
  - It can be basic or complicated

- Then other classes can get a 'string' version of the object at any time.

- This is useful if we wish to
  - Examine an object's value
  - Print out an object for reporting purposes.

toString()

- We will firstly write a toString() for a simple class (Spot)

- Then we will develop a class (Spots) whose main function is to have an array of Spot.
  - We will write a toString() for this collection
  - This toString() uses the Spot toString()..

Ex 1. Example of toString() in Spot

Spot.java

```
1  public class Spot {
2      private  int x, y;
3      public Spot(int x, int y) {
4          this.x = x;
5          this.y = y;
6      }
7      public String toString() {
8          return  "Value of x : " + x +
9                  "Value of y : " + y + "\n";
10     }
11 }
```

Simple Spot Class – Note the toString()

Ex 1. Using toString()

Driver.java

```
1  public class Driver {
2      public static void main(String args[]) {
3          Spot sp = new Spot( x: 37,  y: 47);
4          // call sp.toString()
5          System.out.println("Calling print  with the toString");
6          System.out.println(sp.toString());
7          System.out.println("Calling print  without the toString explicitly mentioned");
8          System.out.println(sp);
9
10     }
11 }
```

Driver Class using toString()

Ex 2. toString() for a collection of Spots

Spot.java

```
1  public class Spot {
2      private  int x, y;
3      public Spot(int x, int y) {
4          this.x = x;
5          this.y = y;
6      }
7      public String toString() {
8          return  "Value of x : " + x +
9                  "Value of y : " + y + "\n";
10     }
11 }
```

Simple Spot Class – Note the toString() (no change)

Ex 2. introduce Spots with an array of Spot

Spots.java

```
12  private  Spot[] manySpots;
13
14  Spots() {
15      manySpots = new Spot[4];
16
17      for (int i = 0; i < 4; i++) {
18          manySpots[i] = new Spot( x: i * 10,  y: i * 10);
19      }
20  }
21  public String toString() {
22      String str = "";
23      for (int i = 0; i < 4; i++) {
24          str += "Spot number :" + i + " :  " + manySpots[i];
25      }
26      return str;
27  }
28  }
```

Spots Class – Note the toString() – needs a loop)

Using toString()

Driver.java

```
1  public class Driver {
2
3          public static void main(String args[]) {
4          Spots spots = new Spots();
5          System.out.println("Calling print  with the toString");
6          System.out.println(spots.toString());
7          System.out.println("Calling print  without the toString explicitly mentioned");
8          System.out.println(spots);
9
10     }
11 }
```

Driver Class using toString() on spots – note similarity

Questions?


Thanks.