CS 152
Computer Programming Fundamentals
Enums

Brooke Chenoweth

University of New Mexico

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What is an enum?

An `enum` in Java is a special kind of class.

- Fixed set of constants
- Can iterate over values
- Can use in a switch
- Use as a type
- Values are objects

Enum example

```
public enum Day {
  SUNDAY, MONDAY, TUESDAY, WEDNESDAY,
  THURSDAY, FRIDAY, SATURDAY
}
```

```
public static void main(String[] args) {
  Day today = Day.FRIDAY;
  switch(today) {
    case SATURDAY:
    case SUNDAY:
      System.out.println("Yay! Weekend!");
      break;
    default:
      System.out.println("Not another weekday!");
      break;
  }
}
```

Enum methods

All enums come with some handy methods that you don't have to write yourself.

- `values()` – Static method that returns an array of all the values for this enum type.
- `valueOf(string)` – Static method that takes a String name and returns the enum constant with that name.
- `toString()` – get String representation of enum constant.
- `compareTo(other)` – compare enum constant to another for order

Enums are classes

- Can define fields and methods
  - More powerful than enums in other languages.
  - Allows data and behaviour to be packaged with the enum constants.
- Cannot explicitly call constructor

Fancier Enum Example

```
public enum Day {
  SUNDAY(true), MONDAY(false), TUESDAY(false),
  WEDNESDAY(false), THURSDAY(false),
  FRIDAY(false), SATURDAY(true);

  private final boolean isWeekend;
  private Day(boolean isWeekend) {
    this.isWeekend = isWeekend;
  }

  public void exclaim() {
    if(isWeekend) {
      System.out.println("Yay! Weekend!");
    } else {
      System.out.println("Not another weekday!");
    }
  }
}
```

Resources

- Java Enum Tutorial
- Technotes: Enums
- How to make the most of Java enums