• don't wait to last minute to submit a project.
• don't submit giant binaries.
• please don't post source code to Piazza.
Past stuff

say \( n = 5 \)

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td></td>
<td></td>
<td>Q</td>
<td></td>
<td></td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td>Q</td>
<td></td>
<td></td>
<td>Q</td>
<td></td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td>Q</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chapter 6: Objects' classes

A class is a new data type, that bundles one or more data values together with methods that operate on the new type.

Ex.

```java
class Empty {}
```

This is a valid class!

notice: no for main()). Not a program.
What may go in a class?

- Variables, called **member variables**, also **fields**.
- Methods, called **member methods**.
- Other classes.

Typically a class models some kind of 'concept'.

```java
class Person {
    String name;
    String phoneNumber;
    int age;
    double weight;
}
```
This is a new data type.
This is not a program.

A variable of type Person is a reference variable.

```
Person a;
```

```
a = new Person();
```

```
{name
  phNum
  age
  weight
}
```

```
a.age
```

```
a.weight
```
note a Person is a lot like an array except not all data is same type.

\[ A \text{[2]} \]

- (dot) is the member access operator. Similar to [] for arrays.
Actually, Person has one special method called a **constructor**.

The name of the constructor is the same as the name of the class.

```java
Person()
```

is constructor for Person class. A constructor can be used for initialization (later).