Code answer from Monday

- Coding!
  - In your Student class
  - Add method classGrades that
    - Creates an array of 12 Strings
    - Puts the grade “A+” into every entry
    - Returns the array

```java
public String[] classGrades(){
    String[] grades = new String[12];
    for(int i = 0; i < grades.length; i++){
        grades[i] = "A+";
    }
    return grades;
}
```

Public Service Announcement

- Make APT java project
  - Add new class for each APT
  - Class / method names EXACTLY match assignment
    - Helper methods can be named anything
  - Test online many times
  - Submit APT project with ALL APTs
    - Not each APT separately
Public Service Announcement

• Testing/Debugging
  • Output appears in online APT tester
  • Write your own `main`
  • Use the debugger! (coming soon in a recitation)

Check that submit history lists ALL files

```
src/CirclesCountry.java
src/Gravity.java
src/SoccerLeagues.java
```

APT Grading

• Complete required number by due date
• “Required” is fair game for exams / recitation
• If you skip an APT you can go back!
  • Keep trying. Hand it in later!
• You can always do more than is required!
  • This will help your grade! (2%-3%)
**APT Grading**

- Example

<table>
<thead>
<tr>
<th>APT checkpoint</th>
<th>APT 1 (50)</th>
<th>APT 2 (80)</th>
<th>APT 3 (120)</th>
<th>APT 4 (160)</th>
<th>Total (160)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student A</td>
<td>40</td>
<td>40</td>
<td>90</td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td>Student B</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>160</td>
<td>80</td>
</tr>
</tbody>
</table>

- If you fall behind once - make up for it next time.
  - This won’t hurt your grade.
- Not handing in APTs until the end of the semester WILL hurt your grade!

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**Hangman**

HELP!!!
Hangman

• What information does your program need?
  • Secret word
  • Number of misses
  • Letters guessed

• How will you store the information?
  • Secret word _______________
  • Number of misses _______________
  • Letters guessed _______________

Hangman

• You have a secret word. How do you save it?
  1. [‘_’, ‘_’, ‘_’, ‘_’];
  2. [“_”, “_”, “_”, “_”];
  3. “_ _ _ _”;

• What are the tradeoffs?
**ArrayList**

- An array that does not have fixed length

```java
ArrayList<String> list = new ArrayList<String>();

// add to ArrayList
list.add("hello");

// check if element is in ArrayList
boolean inList = list.contains("hello");

// get element at index five
String word = list.get(5);
```

**List**

- No primitives! Only Objects!

```java
ArrayList<int> list = new ArrayList<int>();

ArrayList<Integer> list = new ArrayList<Integer>();
```
Hangman

• What information does your program need?
  • Secret word
  • Number of misses
  • Letters guessed

• How will you store the information?
  • Secret word _______________
  • Number of misses _______________
  • Letters guessed _______________

Hangman

• Due – January 23
  • Start early
  • Start early
  • Start early