Telling a Random Story

High-level Design Concepts

From Template to Story

- Algorithms and Structures for Program

    - Read words of template, generate story

    - Find replacements for \<tags\>

```
My name is <name> and my job is to <verb>
<noun>s.  If you have ever seen one, you know
that this job is really <adjective>, because they
are so <adjective>.
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My name is Drew

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My name is <name> and my job is to <verb>
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My name is Drew and my job is to ride

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My name is Drew and my job is to ride dinosaurs.

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My name is Drew and my job is to ride dinosaurs.
If you have ever seen one, you know that this job
is really entertaining

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```
My name is <name> and my job is to <verb>
<noun>s.  If you have ever seen one, you know
that this job is really <adjective>, because they
are so <adjective>.
```

My name is Drew and my job is to ride dinosaurs.
If you have ever seen one, you know that this job
is really entertaining, because they are so fluffy.

High-Level Steps

1. **For each word in the story template**
   - A. **I checked if the word had <>**
     - i. **If so, I picked a word in that category**
     - ii. **and added that word to my story**
   - B. **Otherwise**
     - i. **I just added that word to my story**

- Apply 7 steps to problem
  - Caution: easy to gloss over natural things

High-Level Steps

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   A. **I checked if the word had <>**
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   B. **Otherwise**
      i. **I just added that word to my story**

- Apply 7 steps to problem
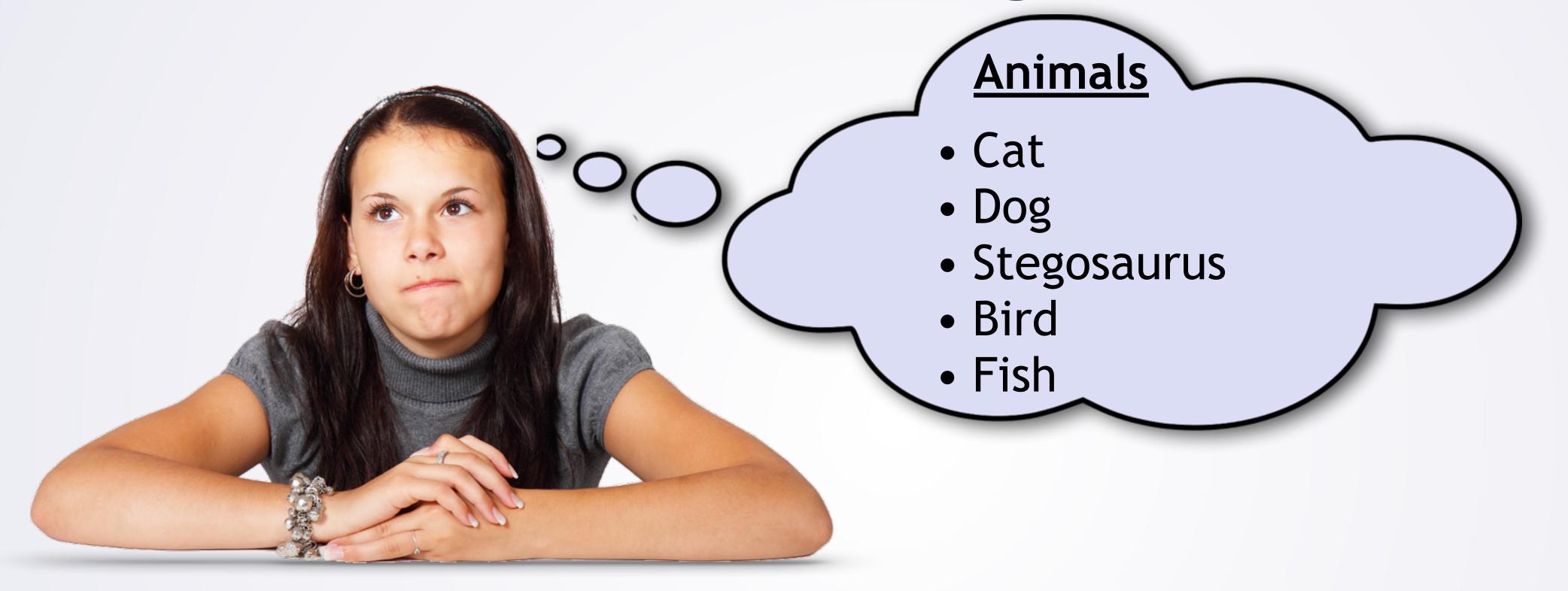 - Caution: easy to gloss over natural things

Implicit Step: Making List of Words

Animals

- Cat
- Dog
- Stegosaurus
- Bird
- Fish

- Think of an animal!

  - Humans: natural, list in our heads

  - Computers: need a list of them

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High-Level Steps: First View

(0) <mark>**Make a list of words for each category**</mark>

(1) **For each word in the story template**

    (A) **I checked if the word had <>**

        (i) **If so, I picked a word in that category**

        (ii) **added the picked word to my story**

    (B) **Otherwise**

        (i) **I just added that word to my story**

- Explicitly include creating word lists

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High-Level Steps: Second View

(0) Make a list of words for each category

(1) For each word in the <mark>story template</mark>

    (A) I checked if the word had <>

        (i) If so, I picked a word in that category

        (ii) added the picked word to my story

    (B) Otherwise

        (i) I just added that word to my story

- Where does story template come from?

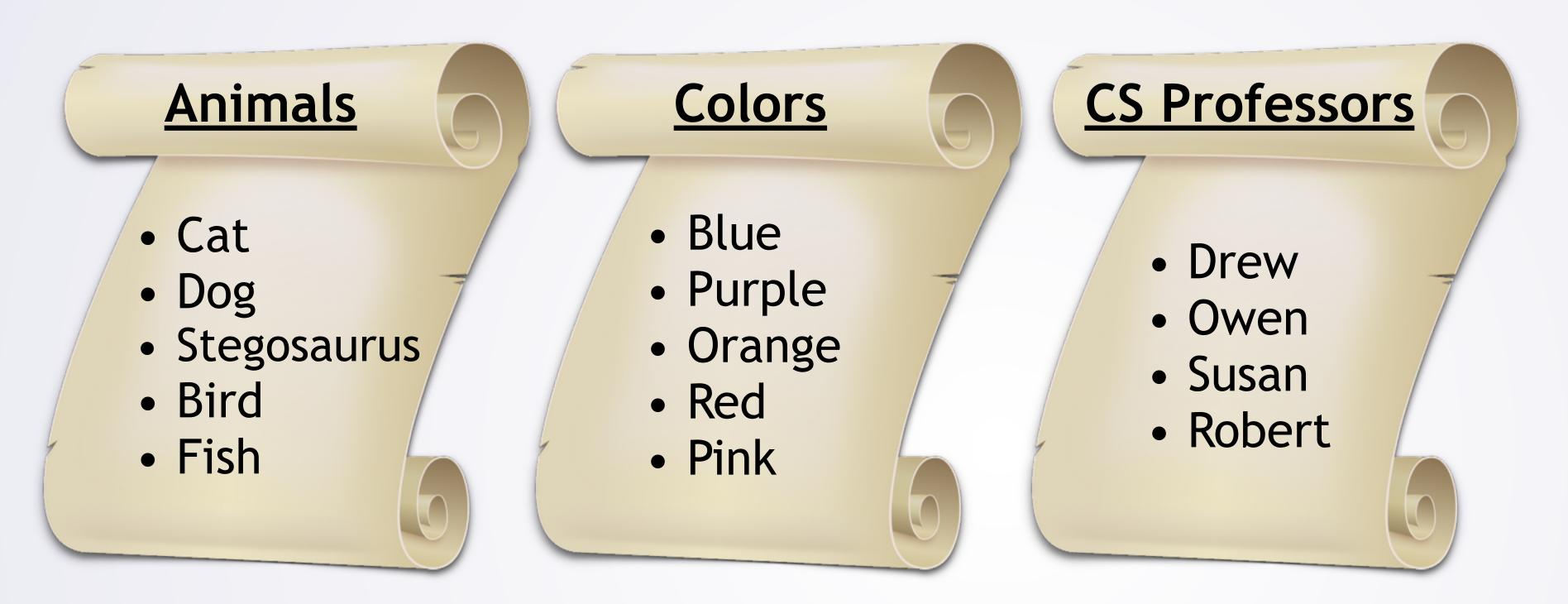 - File, website, …

  - Need to read it

High-Level Steps: Third View

0 **Make a list of words for each category**

1 **For each word in the story template**

A **I checked if the word had <>**

i **If so, I picked a word in that category**

ii **added the picked word to my story**

B **Otherwise**

i **I just added that word to my story**

- Some of these steps are complex

  - Fine: tell you other methods to write

`String pickRandomWord(String category)`

Thinking About Data

Animals
- Cat
- Dog
- Stegosaurus
- Bird
- Fish

Colors
- Blue
- Purple
- Orange
- Red
- Pink

CS Professors
- Drew
- Owen
- Susan
- Robert

- Need to create, choose at random from list
  - How to store?
  - String[]? StorageResource?

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Thinking About Data: Types

- StorageResource benefits and drawbacks
  - Don't need to know size, add as needed
  - Must iterate over all elements, random choice?
- String[] array benefits and drawbacks
  - Easy to choose at random, pick an index
  - Must know capacity of array when creating
- New concept: ArrayList