Today is all about practicing writing code

• Note some of these questions are from old exams that included topics that we have not covered. I have rewritten them so that those topics are no longer in the question.

Problem 1a Procedure (Rewritten Spring 18 Quest 11)

What happens when this code runs?

Panda says number is 6
Problem 1b Procedure (Rewritten Spring 18 Quest 11)

What happens when this code runs?

Panda says number is 8

Problem 1c Procedure (Rewritten Spring 18 Quest 11)

What happens when this code runs?

Panda says number is 5
Problem 1d Procedure (Rewritten Spring 18 Quest 11)

What happens when this code runs?

Panda says number is 6
Problem 2a (rewrite Fall 2018 Question 12)

What happens?
Panda says:

Problem 2b (rewrite Fall 2018 Question 12)

What happens?
Panda says:
Problem 2c (rewrite Fall 2018 Question 12)

What happens?

Panda says:

Problem 3a: Write Tortoise Procedure `paintFriend`

- This procedure has **two parameters**
  - One parameter of type **Biped** named `friend`
  - One parameter of type **Paint** named `somePaint`

  The tortoise and friend turn to face each other. Then the tortoise moves stopping about 0.5 units in front of the friend. Then if the tortoise is taller than the friend, the friend is painted red. Otherwise the friend is painted the color of `somePaint`. 
Write the procedure `paintFriend`

```
declare procedure paintFriend with parameters: Blip, friend, Paint, somePaint
```

**A solution**

```
do in order
  do together
    this turnToFace friend add detail
    friend turnToFace this add detail
  if (this getHeight) > (friend getHeight) is true then
    friend setPaint RED add detail
  else
    friend setPaint somePaint add detail
  this move FORWARD
  (this getDistanceToFrontOf friend) add detail
  if (friend getHeight) > (this getHeight) is true then
    this turnToFace friend add detail
    friend turnToFace this add detail
  else
    friend setPaint somePaint add detail
```

Another Solution

*Move forward is different.*

*The if statement is different.*

```
do in order
  do together
    this turnToFace friend add detail
    friend turnToFace this add detail
  if (this getHeight) > (friend getHeight) is true then
    friend setPaint RED add detail
  else
    friend setPaint somePaint add detail
  this move FORWARD
  (this getDistanceToFrontOf friend) add detail
  if (friend getHeight) > (this getHeight) is true then
    this turnToFace friend add detail
    friend turnToFace this add detail
  else
    friend setPaint somePaint add detail
```

3B) Calling tortoise paintFriend procedure

- Give the call for when the tortoise and pig are to turn and face each other, the tortoise moves over to about unit in front of the pig, and then if the tortoise is taller than the pig, then the pig is painted red, otherwise the pig is painted purple.
3B) Calling tortoise paintFriend procedure
- Give the call for when the tortoise and pig are to turn and face each other, the tortoise moves over to about unit in front of the pig, and then if the tortoise is taller than the pig, then the pig is painted red, otherwise the pig is painted purple.

3C) Calling tortoise paintFriend procedure
- Give the call for when the tortoise and bunny are to turn and face each other, the tortoise moves over to about unit in front of the bunny, and then if the tortoise is taller than the bunny, then the bunny is painted red, otherwise the bunny is painted blue.

Problem 4 (Rewritten Spring 2018 Question 14)
- Assume there are three objects in an Alice world, a panda, a bunny and a tortoise and they are floating in the air, one on top of another. Complete the panda procedure called creatureAbove that has two Biped parameters, one named friend1 and one named friend2. This procedure has the animal that is highest say they are the highest. In the picture on the left, when this procedure is called with friend1 as bunny and friend2 as tortoise, the panda says I am highest. In the picture on the right when this procedure is called with the same arguments, the tortoise says I am the highest.
Write the procedure `creatureAbove`

declare procedure `creatureAbove` with parameters `friend1`, `friend2`.

```plaintext
if BOTH `friend1` isAbove `friend2` AND `friend2` isAbove `friend1` then
  this say "I'm the highest" add detail
else
  if `friend1` isAbove `friend2` then
    `friend1` say "I'm the highest" add detail
  else
    `friend2` say "I'm the highest" add detail
```
Problem 5a (Rewritten Fall 2018 Quest. 15)

- Assume there are four objects in an Alice world, a mapinguari, a bunny, a panda, and a blackCat (shown in that order left to right below) all facing the camera. Complete the following **bunny procedure** called fitBetween that has two **Biped** parameters, one named **friend**, and one named **object**. This procedure has the object say “I can fit between” if the object can “fit between”, or stand between bunny and friend, while the object is also facing the camera, and says “I cannot fit between” otherwise.

- Hint: Note that the “distanceTo” function measures the distance between two objects from the center of their bodies, the bottom double arrow below. You want to measure the distance between them, the top double arrow below.
Problem 5b) Calls to bunny.fitBetween

- Call to ask if the mapinguari can fit between the bunny and panda
- Call to ask if the blackCat can fit between the bunny and panda
- Call to ask if the mapinguari can fit between the bunny and blackCat