Today is all about practicing writing code

• Write the code on paper, like you will do on the exam
Problem 1a Procedure (Rewritten Spring 18 Quest 11)

What happens when this code runs?

![Diagram of the procedure](image)

CompSci 94 Fall 2021
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?

```plaintext
declare procedure mystery
with parameters: WholeNumber = num1, WholeNumber = num2, WholeNumber = num3

do in order
  if num1 ≤ 2 is true then
    this say "number is 5" add detail
  else
    if EITHER num1 > num3 OR num1 > num2 is true then
      this say "number is 6" add detail
    else
      this say "number is 8" add detail
```
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)

```
declare procedure mystery
with parameters: WholeNumber = num1, WholeNumber = num2, WholeNumber = num3

do in order
  if num1 <= 2 is true then
    this say "number is 5" add detail
  else
    if EITHER num1 > num3 OR num1 > num2 is true then
      this say "number is 6" add detail
    else
      this say "number is 8" add detail
```

What happens when this code runs?
Problem 1c Procedure (Rewritten Spring 18 Quest 11)

What happens when this code runs?

Panda says number is 5
What happens when this code runs?
What happens when this code runs?

Panda says number is 6
What happens?

Panda says:
Problem 2a (rewrite Fall 2018 Question 12)

What happens?

Panda says: 4
Problem 2b (rewrite Fall 2018 Question 12)

```
def mystery2(value, amount):
    if either value ≥ 3.0 or amount < 1.0:
        if value > amount:
            this say "1" add detail
        else:
            this say "2" add detail
    else:
        if both value > 2.0 and value > amount:
            this say "3" add detail
        else:
            this say "4" add detail
```

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

What happens?

Panda says: 3
Problem 2c (rewrite Fall 2018 Question 12)

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

What happens?
Panda says:  1
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: Biped friend, Paint somePaint
A solution
Another Solution

*Move forward is different.*
*The if statement is different.*
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 half a 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 a half a 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.
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 (Spring 2018 Exam 1 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 following panda function called `creatureAbove` that has two STurnable parameters, one named `friend1`, and one named `friend2`. This function returns the STurnable object that is highest in the air (panda or friend1 or friend2).

- Here are two possible scenarios. On the left the panda is above tortoise, who is above bunny. On the right the tortoise is above bunny who is above panda. There are other possibilities for the order of the three of them.
Write the function `creatureAbove`
Write the function creatureAbove

```python
def creatureAbove(SJointedModel, friend1, SJointedModel, friend2):
    if BOTH friend1 isAbove this AND friend2 isAbove this is true then
        return friend1
    else
        return friend2
    else
        if friend2 isAbove this add detail is true then
            return friend2
        else
            if friend1 isAbove this add detail is true then
                return friend1
            else
                drop statement here
        return this
```
Problem 8 (Exam 2 Spring 2018)

• Consider an Alice world with one eagle and an array of penguins named penguins. The penguins in the array have three different heights. The penguins are either small (around 0.40 in height), medium (around .65 in height) or large (around 1.10 in height).

• Write the Scene function NumberInHeightRange that has two parameters. The first one is a DecimalNumber named minRange, and the second one is a DecimalNumber named maxRange. This function should return the number of penguins whose height is in the range from minRange to maxRange inclusive.
Write function

```
declare WholeNumber function NumberInRange
with parameters: DecimalNumber = minRange, DecimalNumber = maxRange
```
Write function

```
declare function NumberInRange with parameters: minRange, maxRange

WholeNumber count = 0
for each Flyer someOne in penguins
    if someOne getHeight >= minRange
        if someOne getHeight <= maxRange is true
            count = count + 1
    loop
return count
```