

CompSci 94 Fall 2021, Exam 1

1. (3 pts) Consider the panda shown below. Which line of code has the panda change its position from the left picture to the right picture? (Circle the letter for the correct answer)



- A) `this.panda` roll ☐ RIGHT , 0.25 add detail
- B) `this.panda` roll ☐ LEFT , 0.25 add detail
- C) `this.panda` turn ☐ RIGHT , 0.25 add detail
- D) `this.panda` turn ☐ LEFT , 0.25 add detail

2. (4 pts) For each data item, write its **type** to the right of it.

- A) "CompSci 94 is fun" _____
- B) 42 _____
- C) forward _____
- D) 78.32 _____

3. (3 pts) Consider the panda shown below. Which line of code has the panda change its position from the left picture to the right picture? (circle the letter of the correct answer)



- A) `this.panda` move DOWN, 1.0 add detail
- B) `this.panda` move UP, 1.0 add detail
- C) `this.panda` move RIGHT, 1.0 add detail
- D) `this.panda` move LEFT, 1.0 add detail

4. (4 pts) Give **two reasons** why using procedures is good to do.

5. (3 pts) Consider the babyYeti and tortoise (L to R) shown in the top photo below. Which doInOrder block of code has the yetiBaby change its position from the top picture to the bottom picture?



A)

```
do in order
  this.yetiBaby move RIGHT , 1.0 add detail
  this.yetiBaby turn LEFT , 0.25 add detail
```

B)

```
do in order
  this.yetiBaby move RIGHT , 1.0 add detail
  this.yetiBaby turn RIGHT , 0.25 add detail
```

C)

```
do in order
  this.yetiBaby move FORWARD , 1.0 add detail
  this.yetiBaby turn RIGHT , 0.25 add detail
```

D)

```
do in order
  this.yetiBaby move FORWARD , 1.0 add detail
  this.yetiBaby turn LEFT , 0.25 add detail
```

6. (3 pts) Consider the yetiBaby and hare (L to R) shown on the left and the code shown on the right.



```
do in order
  this.hare move BACKWARD 1.0 add detail
  this.hare moveTo this.yetiBaby add detail
```

Circle the letter beside the correct final position after the code runs.

A)



B)



C)



D)



7. (3 pts) Consider the yetiBaby, tortoise and hare (L to R) picture on the left and the code shown on the right.



```
do in order
  this.tortoise turn LEFT, 0.25, asSeenBy this.hare
  this.yetiBaby turn RIGHT, 0.25, add detail
```

Circle the letter beside the correct final position after the code runs.

A)



B)



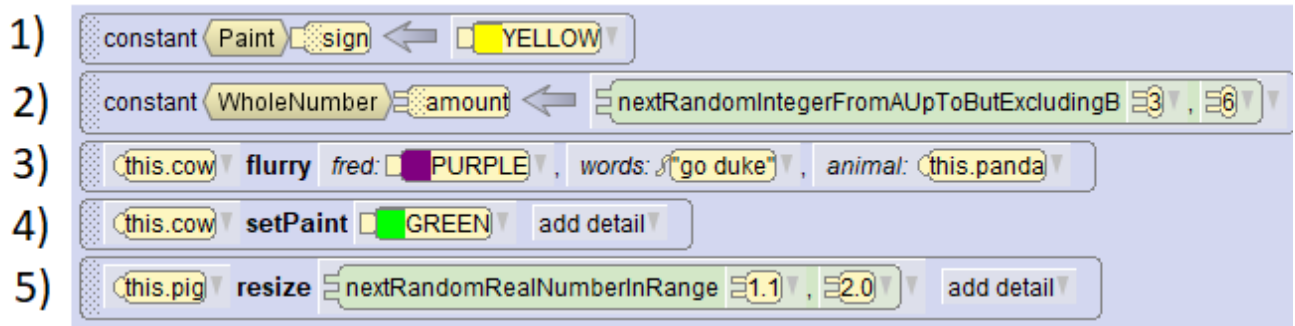
C)



D)



8. (16 pts) Consider the following Alice code in which the lines are numbered.



- A) In line 2, what are the possible values that could be assigned to amount?
- B) In line 3, what is the name of the procedure?
- C) In line 3, what are the two types this procedure could have been created as (what could the user have clicked on after clicking on the six-sided shape)?
- D) In line 3, list the word(s) that are arguments.
- E) In line 3, list the word(s) that are parameters.
- F) Rewrite line 4 with one change so it uses one of the constant variables from lines 1 and 2.
- G) When line 5 executes, will the pig become smaller or larger?
- H) Give two different random numbers that might be generated in line 5.

9. (6 pts) Consider the following program that has the three objects: `stuffedTiger`, `marchHare` and `panda` (shown from left to right in front facing and from above). The world has been setup as shown below. The `stuffedTiger` is **exactly 1.0 meter** from the `marchHare`, and the `panda` is **exactly 1.0 meter** from the `marchHare`. Also consider the following code.



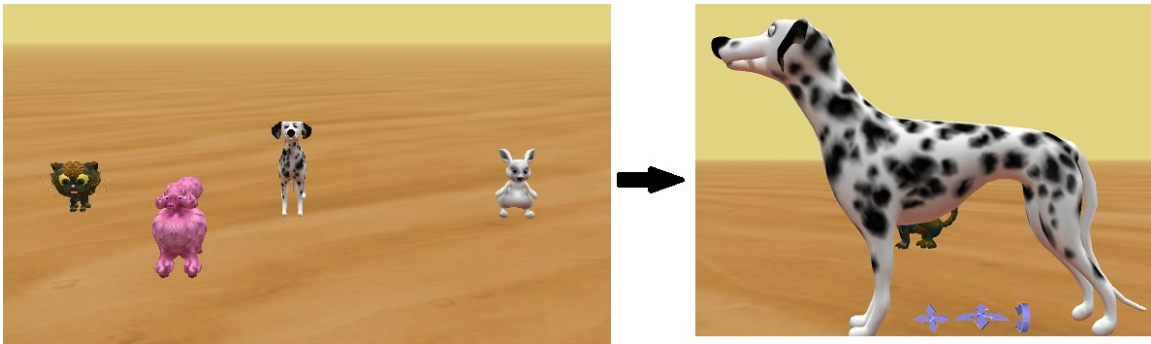
```

1  this.marchHare move BACKWARD , 1.0 add detail
2  this.stuffedTiger turn LEFT , 0.5 , asSeenBy this.panda add detail
3  this.marchHare turn RIGHT , 0.25 add detail
4  this.panda setVehicle this.marchHare
5  this.marchHare move FORWARD , 1.0 add detail
6  this.panda move BACKWARD , 1.0 add detail
  
```

The diagram below is looking from above over the scene (similar to the picture on the right above). The `stuffedTiger` is represented by S, the `marchHare` is represented by M and the `panda` is represented by P. The animals are facing the bottom of the page. Using the diagram below, draw the path of `stuffedTiger` and `marchHare` as a solid line and the path of `panda` as a dashed line.

S M P

10. (9 pts) Consider the following scene shown on the left below (from L to R) that has a blackCat, poodle (renamed as cameraSideView), a Dalmatian and a bunny. The blackCat is 2 units from the dalmatian, and the bunny is two units from the Dalmatian. You want to use the poodle as a CameraMarker in the picture on the right, where the camera is between the bunny and Dalmatian, very close to the bunny and looking at the Dalmatian and the black cat. None of the bunny is showing.



- a) Give the sequence of one shot commands and/or property settings to set up the poodle named cameraSideView as a camera marker that is looking at the scene on the right and described above. The poodle should not be seen once the camera marker is in place.
- b) Assume there is another camera marker that is for the starting view named cameraStartView. Assume when the program starts the camera is facing the animals from the front as shown in the left figure (without the poodle there). Give the line of code to move the camera to the new camera marker you created in part a).

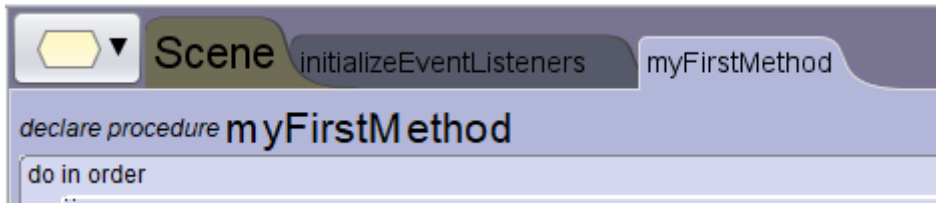
11. (16 pts) Consider the following Alice program that has a **panda**, **bunny** and a **hare** (from L to R in the leftmost figure) and movements (partially shown in the figures) described in detail below. When an object moves, you do not need to make it walk, just move it.



Your code should make the following movements in the numbered order.

- 1) The bunny and panda should face each other at the same time.
 - 2) The bunny should move over to the panda stopping about one unit in front of it.
 - 3) The bunny should jump over the panda in three moves (up, forward and down), and should be 0.5 units above the panda when it goes over it, landing about one unit past the panda. At the same time the bunny goes over the panda, the panda should turn blue.
 - 4) The bunny and hare face each other.
 - 5) The bunny moves over to the hare stopping about two units in front of it.
 - 6) The bunny does a half circle around the hare with the bunny facing the direction it is moving. At the same time as the bunny goes around the hare, the hare disappears.
 - 7) The bunny moves back to its original position, facing the direction it was facing when it started.
- A) You may add one object to the world. Describe the object and where it would be placed.

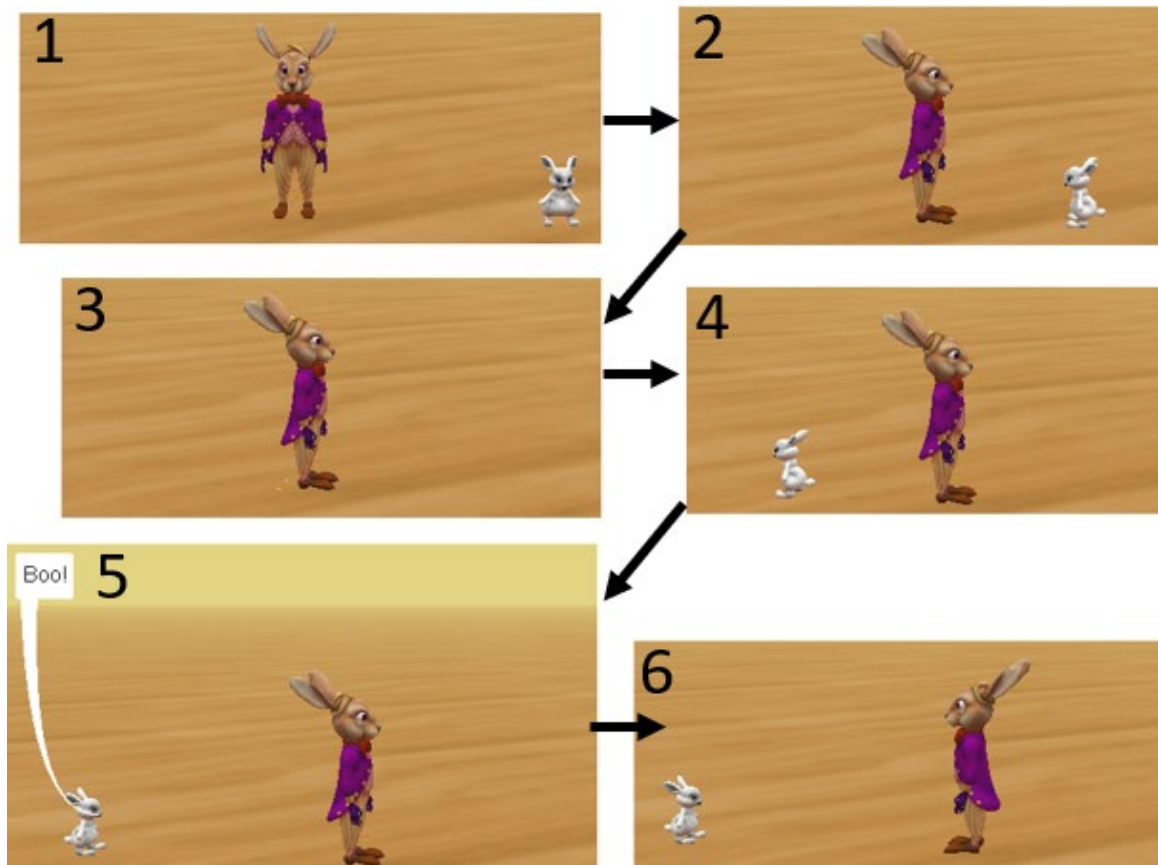
B) Write your code on the next page under myFirstMethod



12. (16 pts) Write the **Bunny** procedure named `tunnelUnder`. This procedure has **two** parameters, one parameter that is of type **Biped** and is named **object**, and a second parameter that is of type **TextString** and is named **phrase**. The general idea is the bunny will go under an object, but follow all the details in the list below. We don't know how far away the bunny is from the object but it is at least 3 units away before the procedure executes. Here is the order and what should happen in this procedure

- A) The bunny and the object face each other at the same time.
- B) The bunny moves forward some random amount between 1.0 and 2.0.
- C) The bunny moves underground. (should see the bunny move underground and disappear)
- D) The bunny moves back up on the other side of the object (exactly twice the distance the bunny was from the object when the bunny moved underground).
- E) The bunny moves forward the same random amount it did in step B
- F) The bunny turns halfway around to face the object
- G) The bunny says the phrase
- H) The object turns halfway around to face the bunny

Here is an example that shows some (but not all) of the moves where `marchHare` (taller) is the object. Figure 1 is the start (before A). Figure 2 is after B completes. Figure 3 is between C and D. Figure 4 is after D. Figure 5 is during G. Figure 6 is after H.



Here are two sample calls to the tunnelUnder procedure (the first call was just illustrated in the figures).



Complete the Bunny tunnelUnder procedure below.

