

# CompSci 94 Spring 2018 Exam I

Given below are the condition possibilities for an if statement

The image shows the 'if' statement menu in Scratch. The menu is titled 'if true is true then'. It has a 'true' button (current value) and a 'false' button. Below these are several condition options: 'nextRandomBoolean', 'NOT true', 'NOT ???', 'BOTH true AND ???', 'EITHER true OR ???', 'BOTH ??? AND ???', 'EITHER ??? OR ???', 'Relational (DecimalNumber) { ==, !=, <, <=, >=, > }', 'Relational (WholeNumber) { ==, !=, <, <=, >=, > }', 'Relational (SThing) { ==, != }', and 'TextString Comparison'. To the right of the menu are three panels of condition options. The first panel contains: '??? <= ???', '??? < ???', '??? >= ???', '??? > ???', '??? == ???', and '??? != ???'. The second panel contains: '??? == ???' and '??? != ???'. The third panel contains: '??? contentEquals ???', '??? equalsIgnoreCase ???', '??? startsWith ???', '??? endsWith ???', and '??? contains ???'. Arrows point from the 'Relational (DecimalNumber)', 'Relational (WholeNumber)', 'Relational (SThing)', and 'TextString Comparison' options in the menu to the first panel. Arrows point from the 'BOTH true AND ???' and 'EITHER true OR ???' options in the menu to the second panel. An arrow points from the 'BOTH ??? AND ???' and 'EITHER ??? OR ???' options in the menu to the third panel.


Below are the tiles at the bottom of a **procedure**

The image shows the tiles at the bottom of a procedure in Scratch. The tiles are: 'do in order', 'count \_', 'while \_', 'for each in \_', 'if \_', 'do together', 'each in \_ together', 'variable...', 'assign', and '//comment'.

Below are the tiles at the bottom of a **function**

The image shows the tiles at the bottom of a function in Scratch. The tiles are: 'do in order', 'count \_', 'while \_', 'for each in \_', 'if \_', 'do together', 'each in \_ together', 'variable...', 'assign', '//comment', and 'return \_'. The entire set of tiles is crossed out with a blue X.

Given below are the panda procedures and panda Properties on the bottom right.

 **this.panda**

Procedures

Functions

group by category ▼

Panda's Editable Procedures (3)

edit

this.panda

standingPose

edit

this.panda

sleepingPose

edit

this.panda

crawlingPose

Biped's Editable Procedures (0)

say, think

this.panda

say

text: ???

this.panda

think

text: ???

position

this.panda

move

direction: ???

amount: ???

this.panda

moveToward

target: ???

amount: ???

this.panda

moveAwayFrom

target: ???

amount: ???

this.panda

moveTo

target: ???

this.panda

place

spatialRelation: ???

target: ???

orientation

this.panda

turn

direction: ???

amount: ???

this.panda

roll

direction: ???

amount: ???

this.panda

turnToFace

target: ???

this.panda

orientTo

target: ???

this.panda

orientToUpright

this.panda

pointAt

target: ???

position & orientation

this.panda

moveAndOrientTo

target: ???

size

this.panda

setWidth

width: ???

this.panda

setHeight

height: ???

this.panda

setDepth

depth: ???

this.panda

resize

factor: ???

this.panda

resizeWidth

factor: ???

this.panda

resizeHeight

factor: ???

this.panda

resizeDepth

factor: ???

appearance

this.panda

setPaint

paint: ???

this.panda

setOpacity

opacity: ???

vehicle

this.panda

setVehicle

vehicle: ???

audio

this.panda

playAudio

audioSource: ???

timing

this.panda

delay

duration: ???

other

this.panda

straightenOutJoints

 **this.panda**

one shots ▼

▼

 **this.panda's Properties**

Panda

panda

←

new Panda

Paint = 

WHITE

Opacity = 

1.0

Vehicle = 

this

Position = ( x: 

-1.00

 , y: 

1.73

 , z: 

-0.10

 )

Width: 

0.75

Size = Height: 

1.15


Depth: 

0.53

Reset

Show Joints: ☐



Given below are the panda functions.

 **this.panda**

**Procedures** **Functions**

group by category ▼

Panda's Editable Functions (3)


-   getLeftEar
-   getRightEar
-   creatureAbove friend1: ???, friend2: ???

Biped's Editable Functions (0)



appearance

-  getPaint
-  getOpacity








size

-  getWidth
-  getHeight
-  getDepth

prompt user

-  getBooleanFromUser message: ???
-  getStringFromUser message: ???
-  getDoubleFromUser message: ???
-  getIntegerFromUser message: ???

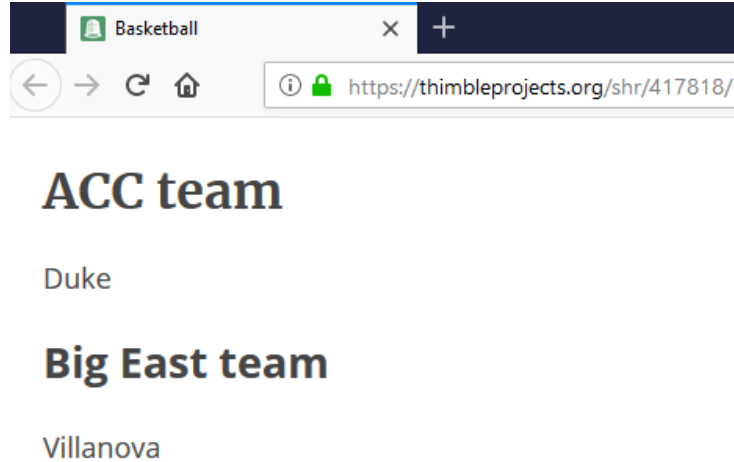
other

-  getDistanceAbove other: ???
-  getDistanceBehind other: ???
-  getDistanceBelow other: ???
-  getDistanceInFrontOf other: ???
-  getDistanceTo other: ???
-  getDistanceToTheLeftOf other: ???
-  getDistanceToTheRightOf other: ???
-  getVantagePoint entity: ???
-  getVehicle
-  isAbove other: ???
-  isBehind other: ???
-  isBelow other: ???
-  isCollidingWith other: ???
-  isFacing other: ???
-  isInFrontOf other: ???
-  isToTheLeftOf other: ???
-  isToTheRightOf other: ???
-  toString

joints

-  getHead
-  getLeftAnkle
-  getLeftClavicle
-  getLeftElbow
-  getLeftEye
-  getLeftEyelid
-  getLeftFoot
-  getLeftHand
-  getLeftHip
-  getLeftIndexFinger
-  getLeftIndexFingerKnuckle
-  getLeftKnee
-  getLeftMiddleFinger
-  getLeftMiddleFingerKnuckle
-  getLeftPinkyFinger
-  getLeftPinkyFingerKnuckle
-  getLeftShoulder
-  getLeftThumb
-  getLeftThumbKnuckle
-  getLeftWrist
-  getMouth
-  getNeck
-  getPelvis
-  getRightAnkle
-  getRightClavicle
-  getRightElbow
-  getRightEye
-  getRightEyelid
-  getRightFoot
-  getRightHand
-  getRightHip
-  getRightIndexFinger
-  getRightIndexFingerKnuckle
-  getRightKnee
-  getRightMiddleFinger
-  getRightMiddleFingerKnuckle
-  getRightPinkyFinger
-  getRightPinkyFingerKnuckle
-  getRightShoulder
-  getRightThumb
-  getRightThumbKnuckle
-  getRightWrist
-  getSpineBase
-  getSpineMiddle
-  getSpineUpper

1. (3 pts) Consider the following web page



What part of the website above was created with the HTML **title** tag?

- a) Basketball
- b) <https://thimbleprojects.org/shr/417818/>
- c) ACC team
- d) Big East team

2. (3 pts) Consider the following HTML code that defines some lists.

```
<ol>
<li>Fred</li>
  <ul>
    <li>Xiawei</li>
  </ul>
<li>Marya</li>
</ol>
```

Which one of the following is the way this HTML code will be displayed on a web page?

- A) 1. Fred  
2. Marya
  - Xiawei
- B) 1. Fred
  - Xiawei2. Marya
- C) • Fred
  - Marya
    - 1. Xiawei
- D) • Fred
  - 1. Xiawei
  - Marya

3. Consider the following html code to display a table.

```
<table border=1>
  <tr><td>UNC</td></tr><tr><td>Duke</td></tr>
  <tr><td>WFU</td></tr><tr><td>NCSU</td></tr>
</table>
```

Which one of the following is the way this HTML code will be displayed on a web page?

A) 

UNC	Duke	WFU	NCSU
-----	------	-----	------

B) 

UNC	Duke
WFU	NCSU

C) 

UNC	Duke
WFU	
NCSU	

D) 

UNC
Duke
WFU
NCSU

4. (4 pts) Consider the following HTML code: and .css code:

```
<h2> Birds</h2>
```

```
<ol>
```

```
<li> duck</li>
```

```
<li> swan</li>
```

```
</ol>
```

```
#darken {
    color:darkgreen;
```

```
}
```

```
#middle {
    text-align:center;
```

```
}
```

Show how to modify the HTML code to use the .css code to have the Birds be centered and the swan to appear in a darkgreen color.

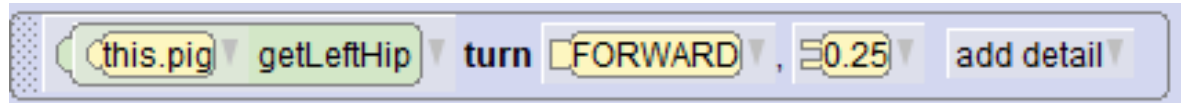
5. (4 pts) Give the CSS code that will make the body of a webpage BLUE and all the H1 headers WHITE.

6. (4 pts) A six digit hexadecimal number represents a color. A color can also be represented as a three-tuple of numbers representing the red, green and blue components (or RGB) of the number.

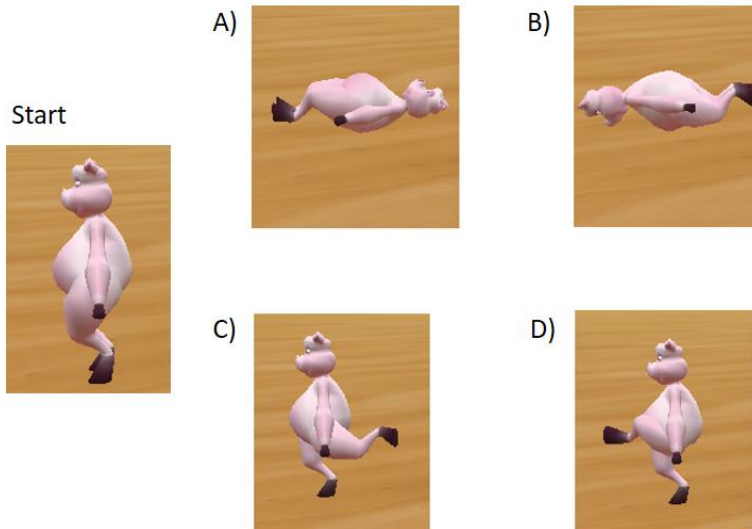
A. Convert the hexadecimal number 341A0E into RGB: (       ,       ,       )

B. Convert the color in RGB (6, 43, 18) to a six-digit hexadecimal number:

7. (3 pts) Consider the following Alice code and the pig is standing straight up as shown with **Start** in the figure on the left below.

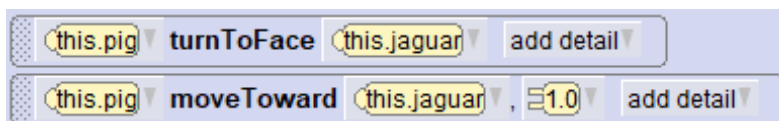


Which one of the following shows what the pig looks like starting in the start position (on the left) and then executing this Alice line of code?

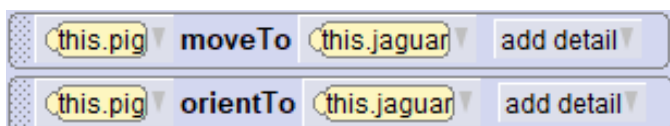


8. (4 pts) Consider an Alice world with a pig and a jaguar.

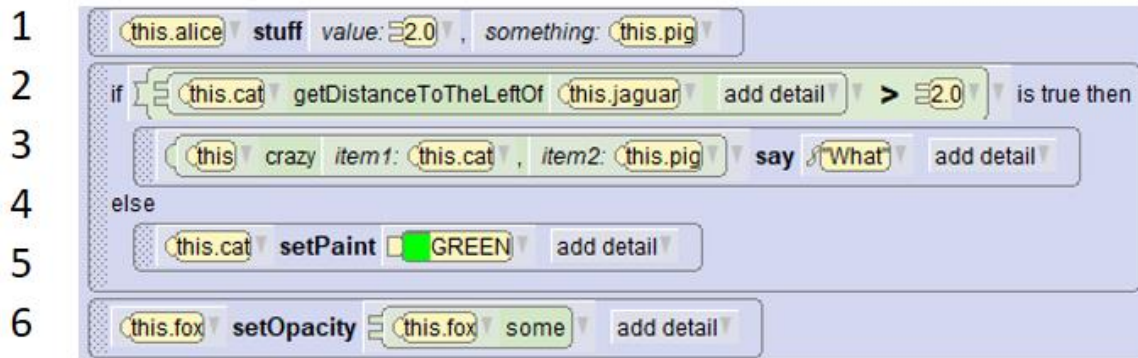
- A. Assume the pig and the jaguar are standing about 4 units apart. Explain what this code would do:



- B. Again assume the pig and the jaguar are standing 4 units apart. Explain what this code would do :



9. (14 pts) Consider the following Alice code in which the lines are numbered.



A) In line 1, is “stuff” a function or a procedure?

B) In line 2, what type is “this.cat getDistanceToTheLeftOf this.jaguar”?

C) In line 3, what is the name of the function and what type does it return?

D) In line 3, list the word(s) that are arguments.

E) In line 3, list the word(s) that are parameters.

F) What must be true in order for line 5 to execute?

G) In line 6, what type of value does the function **some** return?

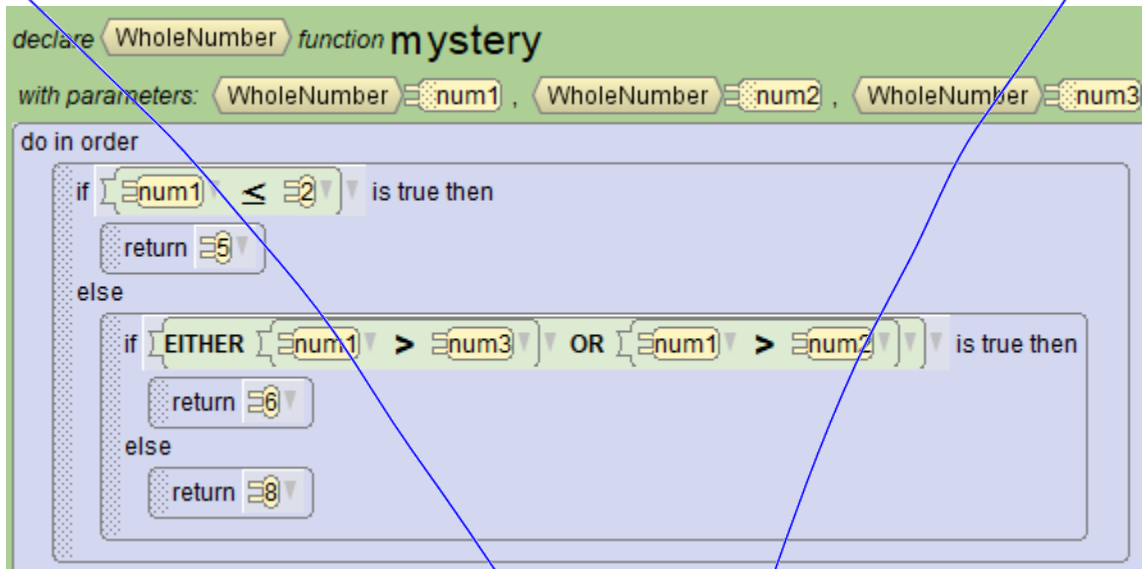
10. (4 pts) Consider the following world that has the three objects: `stuffedTiger`, `marchHare` and `panda` (shown below from left to right) and given code. The world has been setup as shown below. The `stuffedTiger` is **exactly 1.0 meter** from the `marchHare`, and the `panda` is **exactly 1.0 meter** from the `marchHare`.



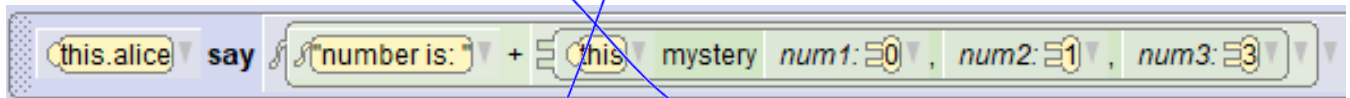
The diagram below is looking from above over the scene. The `stuffedTiger` is represented by the S, the `marchHare` is represented by the M, and the `panda` is represented by the P. The animals are facing the bottom of the page. Using the diagram below, draw the path of `stuffedTiger` and `marchHare`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

S      M      P

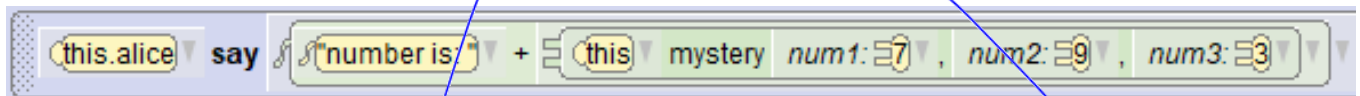
11. (4 pts) Consider the following Mystery function.



A) What does Alice say when the following line of code is run?



B) What does Alice say when the following line of code is run?



12. (10 pts) Consider the following Alice world that has three objects: panda, eagle and bowlingPin.



The world starts as shown in the figure above with the panda and eagle facing front. Write code to do the following in this order. When you move the animals you do not need to move their legs, just move them.

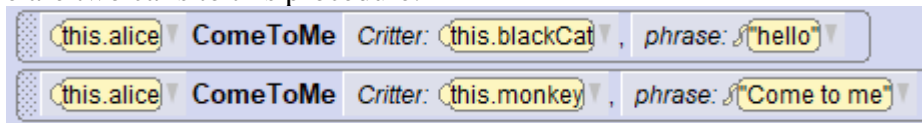
- The bowling pin should move over to the eagle and stand on top of it.
- The panda turns to face the eagle, and moves over to it stopping in front of it
- The eagle moves straight up (with the pin).

```
declare procedure myFirstMethod
do in order
```

13. (8 pts) Complete the following Alice **procedure** called `ComeToMe` whose header is shown below. This procedure has two parameters, an `SJointedModel` named “critter,” and a `TextString` named “phrase.” This procedure first has Alice face the critter, then she says the phrase to it. The critter then turns to face Alice. The critter moves close to Alice and begins to jump over her. As it passes over her the critter fades away and disappears. In the figures below, the figure on the left shows the start. The right figure shows the result of the first call with the cat fading as the cat goes over Alice.



Here are two calls to this procedure.



Complete the code below.

```
declare procedure ComeToMe with parameters: SJointedModel Critter , TextString phrase
```

14. (10 pts) 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.



Complete the function on the next page.

A) (8 pts) Complete the **panda function** below.

```
declare SJointedModel function creatureAbove
with parameters: SJointedModel friend1, SJointedModel friend2
```

B) (2 pts) Assume the panda, tortoise and bunny are all floating in the air with one on top of another as described earlier in this problem. Give the code that calls the function you just wrote to have the one that is highest in the air say “I’m on top”.