

1.

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Week 2A Course Material - CS x Challenge: Bouncy Ball | Logic x CSC 106 - Winter J Term - Go x CSC106 JTerm Notes - Google x

khanacademy.org/computing/computer-programming/programming/logic-if-statements/pc/challenge-bouncy-ball

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Computer programming

UNIT 1: LESSON 11
Logic and if Statements

If Statements

Challenge: Bouncy Ball

More Mouse Interaction

Challenge: Your First Painting App

Booleans

Challenge: Number Analyzer

Logical Operators

Bounce off the ceiling!

Okay, now let's get the ball to reverse once it hits the ceiling too, so that it keeps going down and up forever.

```
1 // position of the ball
2 var y = 0;
3 // how far the ball moves every time
4 var speed = 2;
5
6 draw = function() {
7   background(127, 204, 255);
8
9   fill(66, 66, 66);
10  ellipse(200, y, 50, 50);
11
12  // move the ball
13  y = y + speed;
14
15  if(y > 400) {speed = -2;}
16  if(y < 0) {speed = 2;}
17 };
18
```

Hint What's this?

```
draw = function() {
  ...;
  if (y < 0) {
    speed = ...;
  }
};
```

Congratulations!
You earned 1500 points!

Up next: talkthrough

2.

Chrome File Edit View History Bookmarks Profiles Tab Window Help

Week 2A Course Material - CS x Challenge: Your First Painting x CSC 106 - Winter J Term - Go x CSC106 JTerm Notes - Google x

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Challenge: Your First Button

Add some color!

Awesome! How's it look? Now, fill the circles in with a color and remove the stroke, so it's more like a paintbrush.

```
1 draw = function() {
2   noStroke();
3   fill(255, 0, 0);
4   if(mouseIsPressed) {
5     ellipse(mouseX, mouseY, 20, 20);
6   }
7 };
8
```

Hint What's this?

```
noStroke();
fill(..., ..., ...);
ellipse(mouseX, mouseY, 20, 20);
```

Congratulations!
You earned 1500 points!

Step 2/2

Up next: talkthrough

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Week 2A Course Material - CS x Challenge: Number Analyzer | x CSC 106 - Winter J Term - Go x CSC106 JTerm Notes - Google x +

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Computer programming

UNIT 1: LESSON 11
Logic and if Statements

Challenge: Your First Painting App

Booleans

Challenge: Number Analyzer

Logical Operators

Challenge: Your First Button

Challenge: Smarter Button

If/Else - Part 1

```

1 var theNumber = -100;
2
3 fill(0, 0, 0);
4 textSize(30);
5 text("Analysis of: " + theNumber, 10, 36);
6
7 text("It's positive", 10, 90);
8 text("It's negative", 10, 140);
9 text("It's zero", 10, 190);
10
11 noFill();
12
13 if(theNumber > 0) {
14   rect(5, 60, 200, 40);
15 }
16 if(theNumber < 0) {
17   rect(5, 110, 200, 40);
18 }
19 if(theNumber === 0) {
20   rect(5, 160, 200, 40);
21 }

```

Analysis of: -100
It's positive
It's negative
It's zero

Congratulations!
You earned 1500 points!

Undo Start over Step 3/3 Spin-off

All changes saved.

About Documentation

Created by pamela.

Up next: talkthrough

3.

Chrome File Edit View History Bookmarks Profiles Tab Window Help

Week 2A Course Material - CS x Challenge: Your First Button | x CSC 106 - Winter J Term - Go x CSC106 JTerm Notes - Google x +

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Challenge: Your First Button

Google Classroom

But WHERE is the mouse pressed?

Did you notice that the rectangle changes its color when you click on the bottom half of the canvas? Buttons aren't supposed to activate when you click outside of them.

You'll fix that now - change the if condition so that the color of the button changes when the mouse is both pressed and on the upper half of the canvas.

```

1 draw = function() {
2   fill(0, 255, 68); // start color
3   if(mouseIsPressed && mouseY < 200) {
4     fill(255, 0, 0);
5   }
6   rect(0, 0, 400, 200); // the button
7
8   // The button text
9   fill(0, 0, 0);
10  textSize(30);
11  text("Press me!", 145, 115);
12 };
13

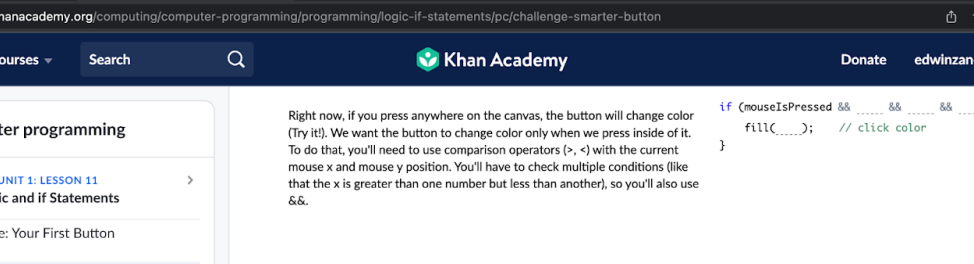
```

Press me!

Congratulations!
You earned 1500 points!

Up next: challenge

4.



The screenshot shows the Khan Academy interface. The top navigation bar includes 'Courses', 'Search', and the 'Khan Academy' logo. The left sidebar lists the course 'Computer programming' with 'UNIT 1: LESSON 11 Logic and if Statements' selected. The main content area displays the 'Challenge: Smarter Button' instructions and a code editor. The instructions state: 'Right now, if you press anywhere on the canvas, the button will change color (Try it!). We want the button to change color only when we press inside of it. To do that, you'll need to use comparison operators (>, <) with the current mouse x and mouse y position. You'll have to check multiple conditions (like that the x is greater than one number but less than another), so you'll also use &&.' The code editor shows a JavaScript function `draw` that sets a green button with the text 'PRESS ME!'. The code uses `fill(0, 255, 68);` for the green color and `fill(33, 112, 52);` for the click color. A 'Congratulations!' message indicates the user has earned 2100 points.

Computer programming

< UNIT 1: LESSON 11 >
Logic and if Statements

- Logical Operators
- Challenge: Your First Button
- Challenge: Smarter Button
- If/Else - Part 1
- Challenge: Flashy Flash Card**
- If/Else - Part 2
- Review: Logic and if Statements
- Random numbers

Show the answer!

In this challenge, you'll make a flash card to help remember fun facts. You'll display the answer when the mouse is pressed, and the question when it isn't.

Hint: Use the `mousetPressed` variable to check if the mouse button is pressed.

```

1 draw = function() {
2   background(165, 219, 162);
3   fill(255, 254, 222);
4   rect(20, 100, 364, 200);
5
6   fill(0, 0, 0);
7   textSize(20);
8   if(mouseIsPressed) {
9     text("Javascript", 39, 200);
10  }
11  else {
12    text("What programming language is this?",
13         39, 200);
14  };
15 }
```

Hint What's this?

```

if ( ) {
  text(" ", , );
} else {
  text(" ", , );
}
```

Report a problem

Question 13: B

Question 14: A

Question 15: D

Question 16: D

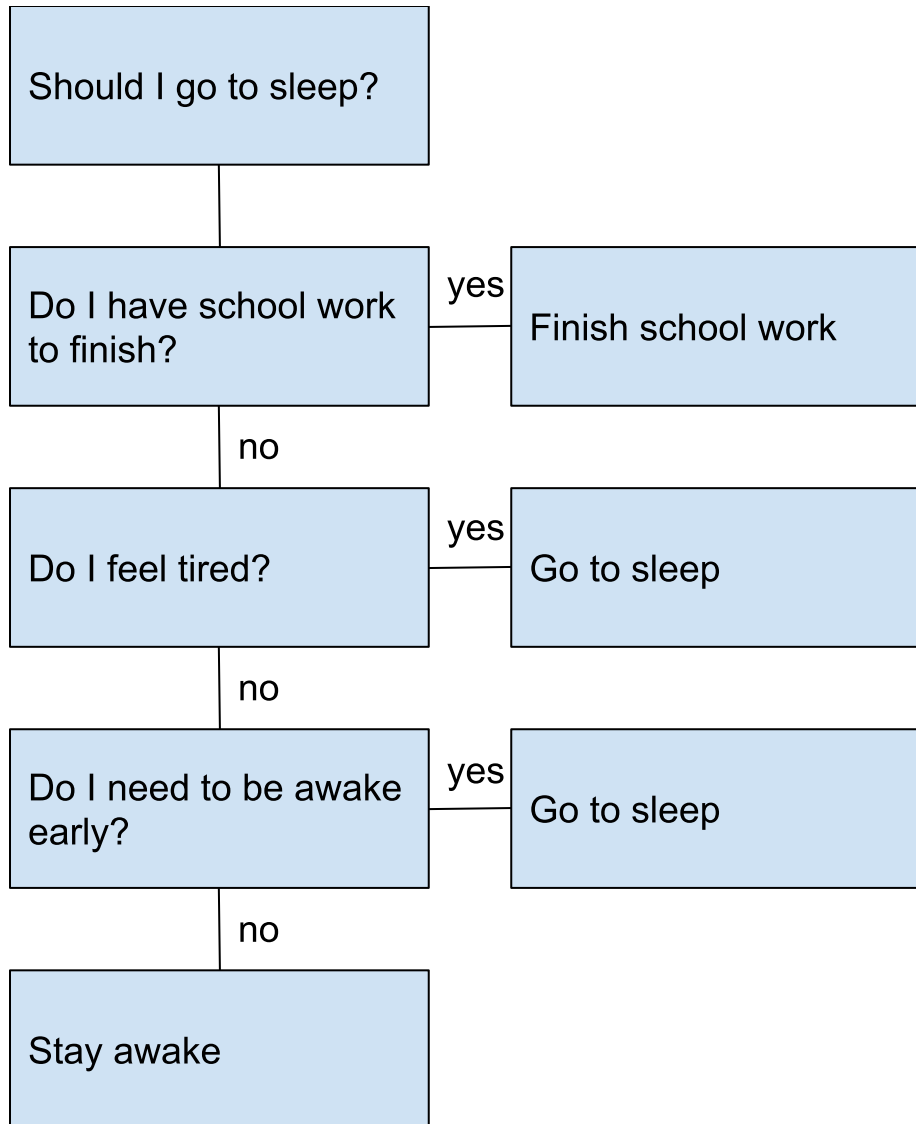
Question 17: B

Question 18: A

Question 19: B

Question 20: C

7. A decision tree could start off with a question such as, "Should I go to sleep?". The tree can then go down to a question that asks, "Do I have school work to finish?" and then branch off to "Finish school work" if the answer is yes. If the answer is no, then it goes down to a question that asks "Do I feel tired?" and then branch off to "Go to sleep" if the answer is yes. If the answer is no, then it goes down to a question that asks, "Do I need to be awake early?". If the answer is yes, then it goes to "Go to sleep", if the answer is no, then it goes to "Stay awake"



- 8.
9. https://www.khanacademy.org/computer-programming/herandez-zanella_decision/4631839751061504
10. <https://youtu.be/4618oyunH4c>
11. https://www.khanacademy.org/computer-programming/herandez-zanella_follow/4954058498818048
12. <https://docs.google.com/document/d/1hbFmhHlXLGEEooj-l4ggJnQ-Pce19zezxy4FucUHMT4/edit>