Lady Ada Team Worksheet

Please email your responses to submit.o.bot. The subject line should say Lady Ada Team X, where X is your team number.

1. What is wrong with the following sketch and what should we do to fix it?

```
/*
 * Switch test program
 */
int switchPin = 2;                // Switch connected to digital pin 2

void setup()                      // run once, when the sketch starts
{
  Serial.begin(9600);
  pinMode(switchPin, OUTPUT);
}


void loop()                       // run over and over again
{
  Serial.print("Read switch input: ");
  Serial.println(digitalRead(switchPin));
  delay(100);
}
```

2.. In circuit 5 did you use a pull-down resistor or a pull-up resistor?

3. Why do we need a pull-up or pull-down resistor?

4. With the pull-down resistor configuration, what is the value read by digitalRead() when the button is pressed?

5. With the pull-up resistor configuration, what is the value read by digitalRead() when the button is released?

6. In the sketch Alternating Switch why do we need both val and buttonState? How are they different and what do they do?

7. I was looking at an online electronic parts store. On the webpage advertising the push button switch we have in our kit, one customer added the comment:

I find these horribly unreliable. Missed-hits and Double-hits abound.
I opened one up to see why it was so terrible and they're not much different from their tiny counterparts, but there looks like there's a lot of extra space between the contacts.
Good for a novelty, not much else.

On our website under today's date I posted a video showing the problem. Write a response to the customer's problem. Does this problem have a name? If there is a software solution to the problem describe it.

8. How many volts is standard house wiring? What is the max voltage of the Arduino? The data sheet for the push button used in our kit is at http://www.e-switch.com/Portals/0/Series_Pdf/TL1100.pdf. What is the maximum voltage you can use this switch for?

9. In Design Challenge Part 1, we find a schematic on the desk of the president of Blinky Lite Fun Company. Some of the components shown on the schematic we do not have in our kit. Plus, with our knowledge from the SIK guide, we know we don't even need one of the components. List what components you would change and what components you would use it their place. And list the component we do not need.