MISR UNIVERSITY FOR SCIENCE AND TECHNOLOGY
COLLEGE OF ENGINEERING
MECHATRONICS DEPARTMENT

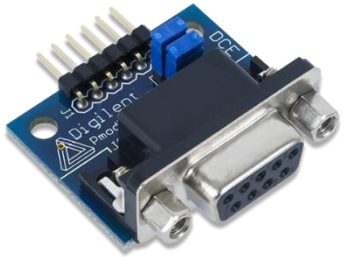
MTE 405 SENSORS AND MEASUREMENTS

LAB 3 – SPRING 2019

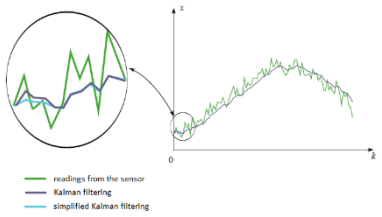
Lab 3

Goals Of The Lab

Introduction to Sensors and Signal Conditioning with Virtual Prototyping



RS-232 Serial Communication



Characteristics of Measurements

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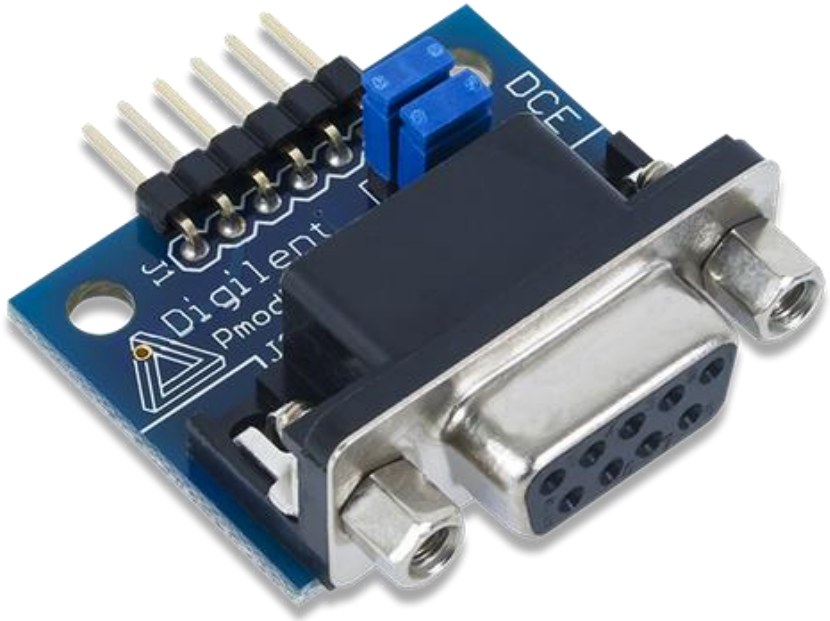
Serial Communication

RS-232 Protocol

Learning outcome

- Serial data protocol
- Acquiring sensor data.



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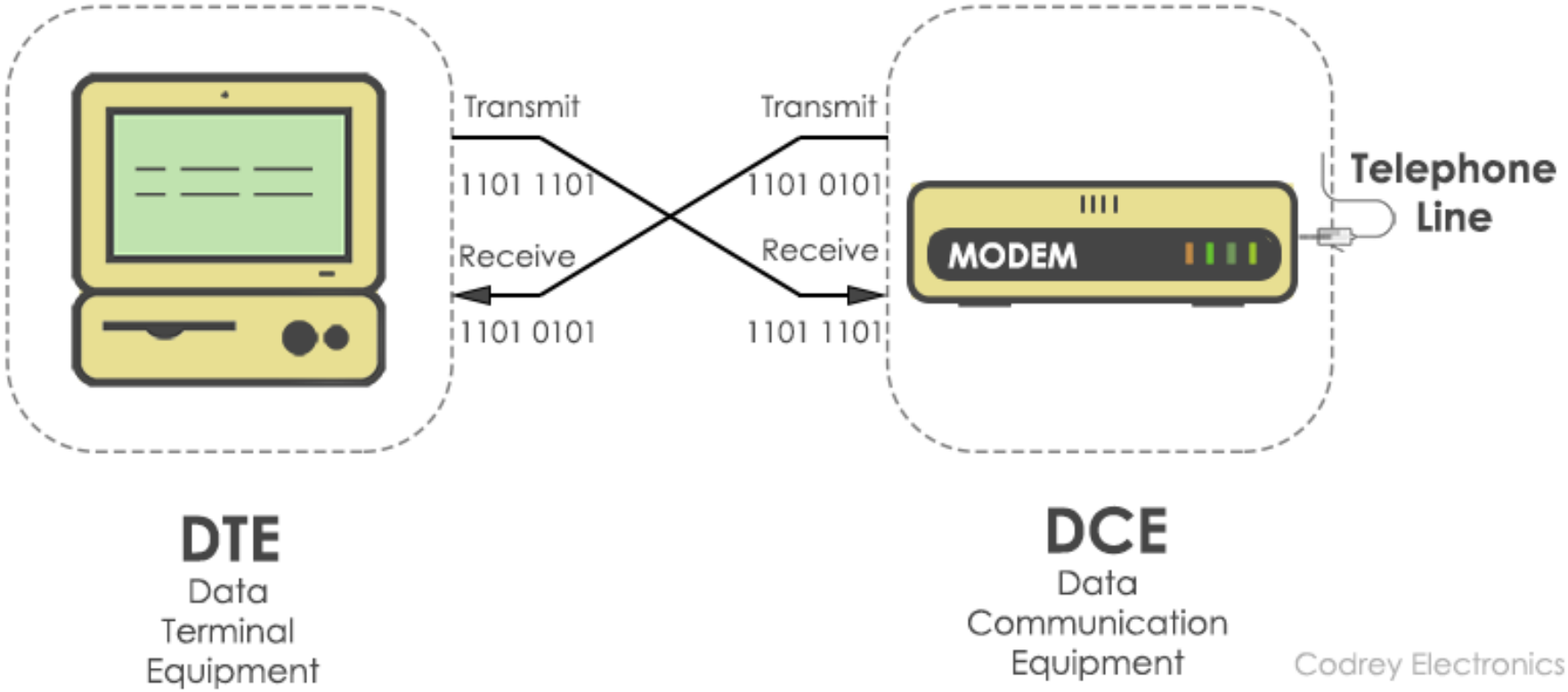
Serial Data Transfer

RS -232



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Serial Data Transfer

RS -232

Signal Voltage Levels	Logical State
-3 to -25	OFF (0)
+3 to +25	ON(1)

Control Signal Voltage Levels (Volts)	Logical State
-3 to -25	OFF (1)
+3 to +25	ON (0)

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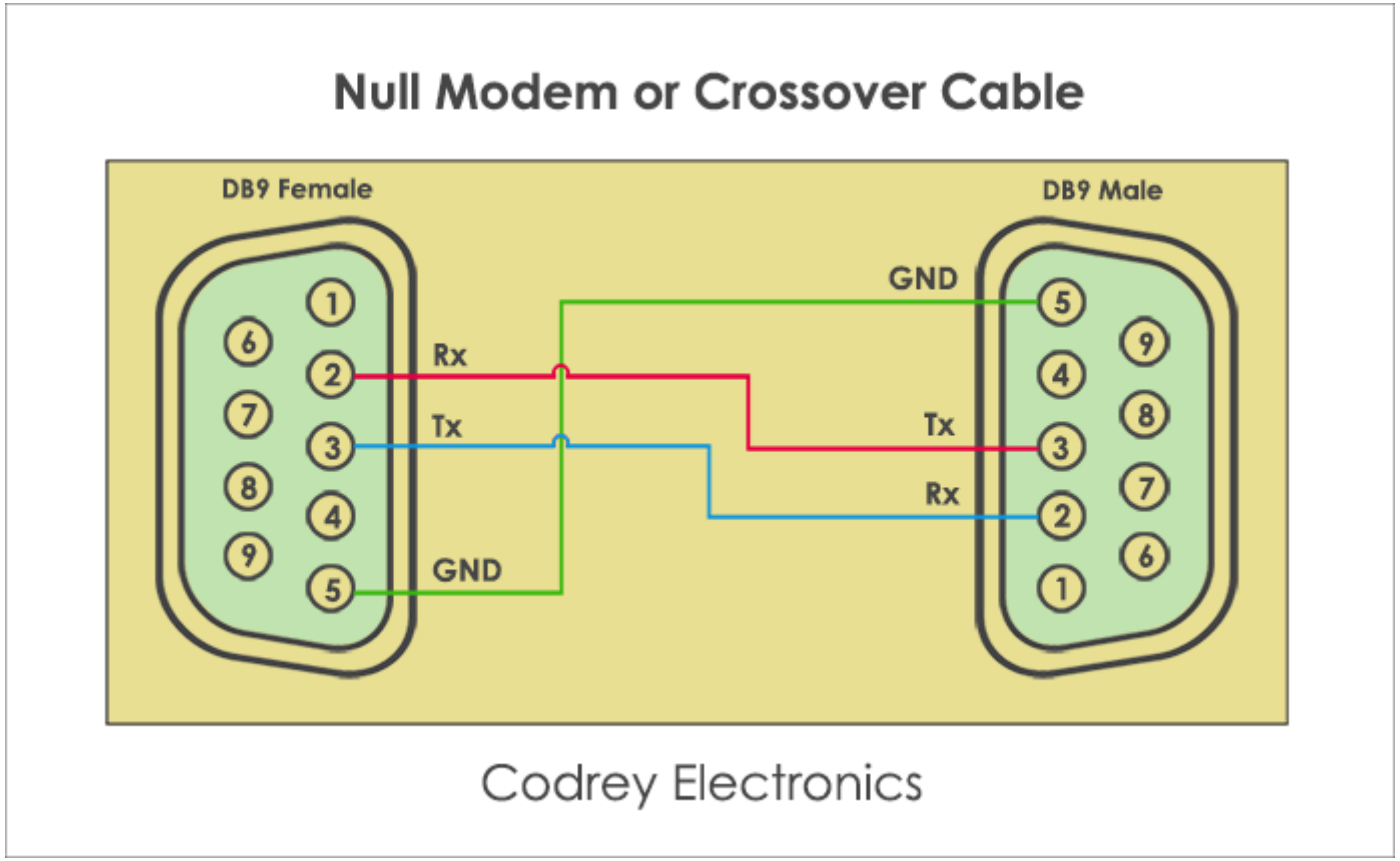
Serial Data Transfer

RS -232



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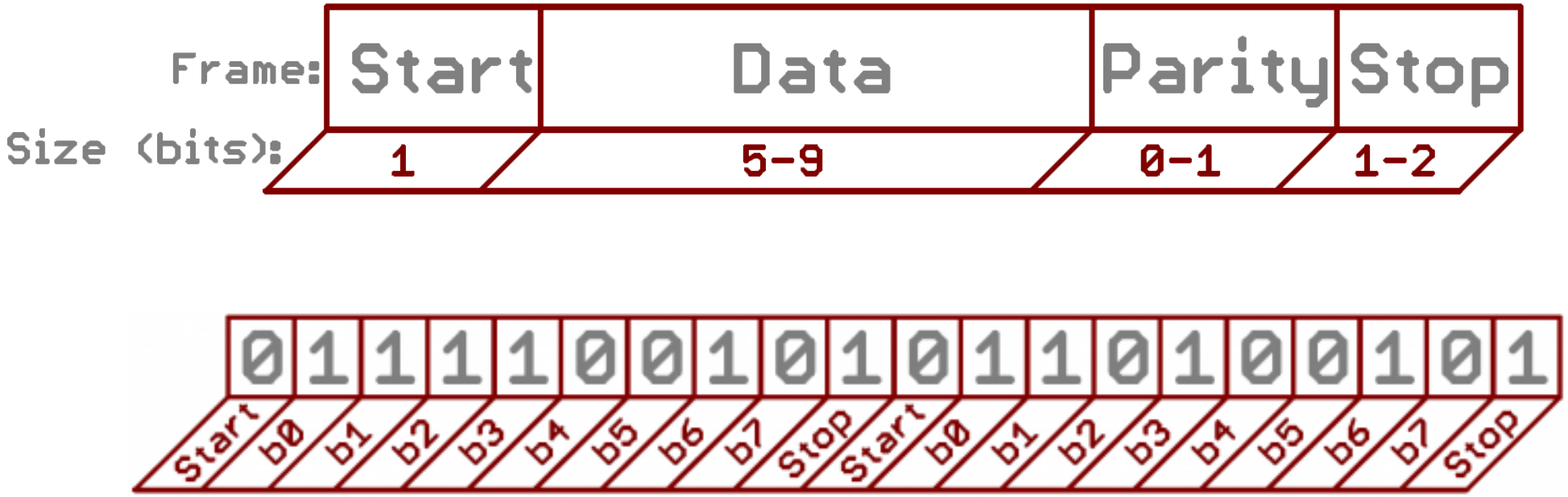
Serial Data Transfer

RS -232



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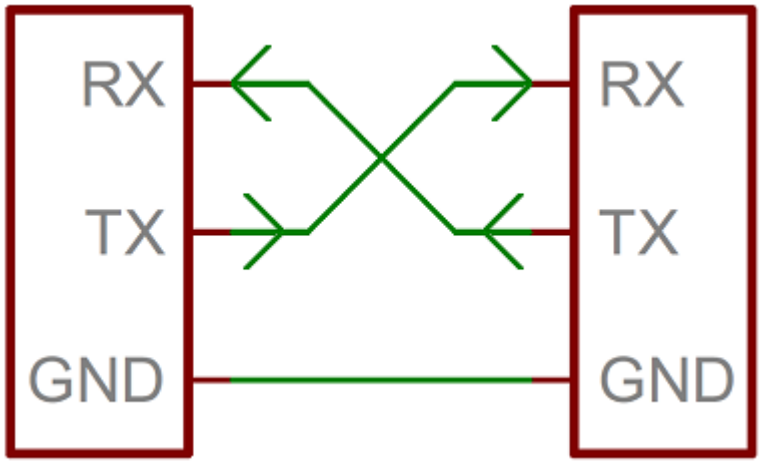
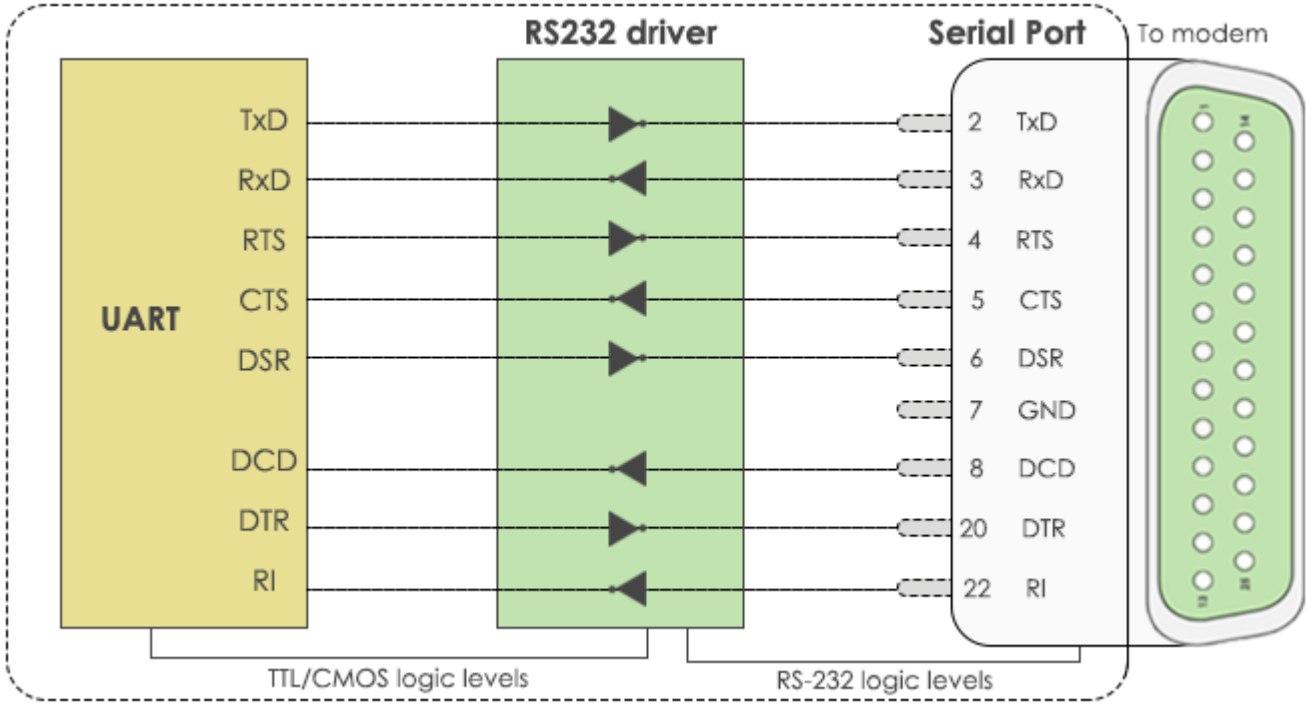
Serial Data Transfer

RS -232





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Exercise 1

RS -232

Outcomes

- Acquiring LM35 sensor voltage using on-board Arduino Uno ADC.
- Converting LM35 voltage into temperature
- Display LM35 temperature on serial terminal (Proteus).

Tools

Arduino IDE 1.8

Proteus 8.10

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ASSIGNMENT 2

RS -232

1. **Write a technical report about RS232 standard using word document.**
2. **The report must be technical (fonts, headers). Don't copy and paste to avoid discarding the report.**
3. **Simulate Acquisition of LM35 and DC Motor:**
    1. **If Temperature is above 25 ^{o}C, motor is ON.**
    2. **Otherwise, motor is OFF.**
    3. **Deliver the Arduino code and Proteus file.**

Due Before 09-04-2020

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PAST ASSIGNMENT

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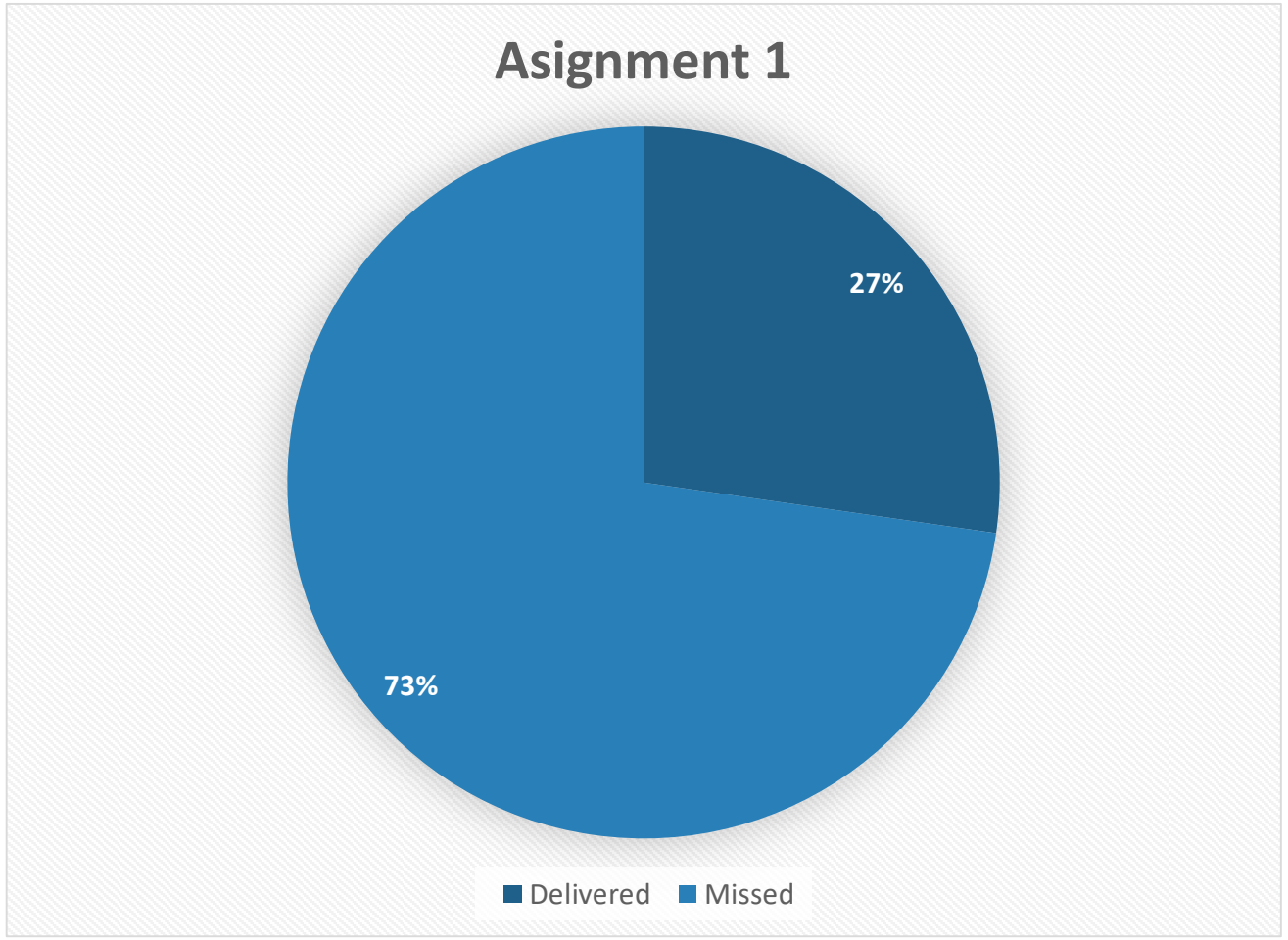

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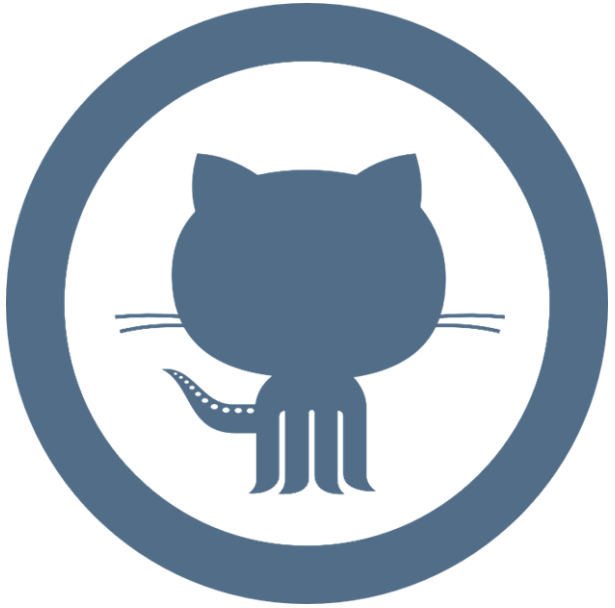

Don’t forget to pull the lab update from.

http://github.com/wbadry/mte405

END OF Lab 3