TASK 1:

Design a power circuit which uses a 9v battery and steps it down to 5v and 3.3v. Clearly explain the design process and the choice of components. Draw circuit diagrams to explain your design

References:

https://www.circuitstoday.com/voltage-regulators

https://www.monolithicpower.com/en/voltage-regulator-types#:~:text=A%20voltage%20regulator%20is%20a,with%20the%20other%20electrical%20components.

https://www.elprocus.com/types-of-voltage-regulators-and-working-principle/

TASK 2:

Design a sensor network with Arduino, which collects the data from three different sensors of your choice and displays it on the serial monitor. You need to develop the code and compile it. Clearly explain the design process, the choice of components and code development.

References :

https://www.youtube.com/watch?v=fCxzA9_kg6s&list=PLA567CE235D39FA84

(Till tutorial 8)

TASK 3 (just to get an idea of programming and designing from datasheet):

Find the datasheet for the temperature sensor TMP 116/TMP 117 (Texas instruments) and try to develop the interfacing circuit and algorithm to interface that sensor. The whole point of this exercise is to acquainted with the process of reading datasheets and trying designing from them which would be essential in designing advance systems.

TASK 4 (Reading task):

Go through the datasheet of STM32L451CE microcontroller (probably the one which we would be using for actual design)