Task 1: Consider the problem faced by an infant learning to speak and understand a language. Explain how this process fits into the general learning model. Describe the percepts and actions of the infant, and the types of learning the infant must do. Describe the subfunctions the infant is trying to learn in terms of inputs and outputs, and available example data.

Task 2: Apart from evaluating the performance (e.g., accuracy) of a linear regression model using a test data set, are there any simple and common techniques that can be used for evaluating a linear regression model (especially for one-dimension input)?

Task 3: Are linear regression models always be visualized as a straight line? Can they model arbitrary curves?

Task 4: Discuss the following concepts that have been used extensively in machine learning:
1. Parameters vs. hyperparameters
2. Training data sets vs validation data sets vs test data sets.
3. Training errors vs validation errors vs test errors
4. Overfitting vs. Underfitting

Are there any relations between them? Provide examples in the context of linear regression.

Task 5: In data science (DS) and machine learning (ML), two important relations are extensively studied: correlation and causation. Are they related? Which relation should typically be modeled by a linear regression model?

Based on this relation, can you propose an approach for agents who operate in uncertain environments that can perform probabilistic reasoning (presented in our **lecture Week 10**)?