Write the anatomy of model representation and Cost function.

Model Representation

1. **Input Features:-** The raw data features that the model uses for making predictions.

2. **Parameters:-** These are the internal variables that the model adjusts during training to learn from the data.

3. **Hypothesis Function (or Prediction Function):** It's the function that the model uses to make predictions based on input features and learned parameters. For example, in linear regression, it can be represented as
$$h_\theta(x) = \theta_0 + \theta_1 x_1 + \theta_2 x_2 + \dots \theta_n x_n$$, where $h_\theta(x)$ is the prediction, $\theta_0, \theta_1, \dots, \theta_n$ are parameters, and $x_1, x_2, \dots, x_n$ are input features.

4. **Architecture:-** Describes how to the model is structured, including the number and types of layers (for neural networks) and how layers are interconnected.

COST Function (OR LOSS function)

1- Objective:- The goal of the model, such as minimizing errors in predictions.

2- Prediction Error:- The difference between the predicted output and the actual output for a given input.

3- Loss/Cost:- A measures that quantifies the prediction error for the entire dataset. It is usually a mathematical function that takes predicted values and actual values as input and outputs a single scalar value representing the "cost" of the prediction.

4- Training:- The process of finding the parameters that minimize the cost function. This is often done using optimization algorithms like Gradient Descent, where the gradients of the cost function with respect to the parameters are used to update the parameters iteratively reducing the cost.