

UNIT-3 Evaluating Models

I. Answer the following in short.

1. What is Evaluating Models?

Ans The evaluation process uses different evaluation metrics to understand a machine learning model's performance strengths and weaknesses. Evaluation is the process of understanding the reliability of any AI Model, based on its outputs by feeding test dataset into the model and comparing with actual answers.

2. Why do we need of Train-test split?

Ans The train dataset is used to make the model learn, the input elements of the test dataset are provided to the trained model. The model makes predictions and the predicted values are compared to the expected values. The objective is to estimate the performance of the machine learning model on new data.

3. What do you understand by accuracy and error in evaluation metrics?

Ans The term Accuracy is defined as the evaluation



metric that measures the total number of predictions that are correct by the model. It means how close the prediction is to true value.

→ The accuracy of the model and the performance of the model is directly proportional, that means better the performance of the model, higher is the accuracy of the predictions.

→ The term Error means the action that is inaccurate or wrong. It refers to the difference between a model's prediction and the actual outcome. It quantifies how often the model makes mistakes.

II Answer the following in detail.

1. A medical diagnosis system is used to classify patients as having a certain disease (1) or not having it (0). Out of 1000 patients.

True Positive (TP): 120 patients were correctly diagnosed with the disease.

False Positive (FP): 20 patients were incorrectly diagnosed with the disease.



True Negative (TN): 800 patients were correctly diagnosed as not having the disease

False Negative (FN): 60 patients were incorrectly diagnosed as not having the disease

Ans	Confusion Matrix	Reality	
		Yes	No
	Yes	120	60
Prediction	No	20	800

$$\text{Accuracy} = \frac{(TP + TN)}{(TP + TN + FP + FN)}$$

$$= \frac{120 + 800}{120 + 800 + 20 + 60}$$

$$= \frac{920}{1000}$$

$$= 0.92$$

$$\text{Precision} = \frac{TP}{TP + FP}$$

$$= \frac{120}{120 + 20} = \frac{120}{140} = 0.857$$

$$\text{Recall} = \frac{TP}{TP + FN}$$

$$= \frac{120}{120 + 60} = \frac{120}{180} = 0.667$$

$$\text{F1 Score} = 2 * \frac{\text{Precision} * \text{Recall}}{\text{Precision} + \text{Recall}}$$

$$= 2 * \frac{0.857 * 0.667}{0.857 + 0.667}$$

$$= 2 * \frac{0.571619}{1.524} = 0.75$$

$$= 75\%$$

PART-A

Chapter-2 Self Management Skills - II

I Answer the following:

1. What are the few stress management techniques?

Ans

- Time Management
- physical exercise and fresh air
- Meditation
- yoga
- Healthy diet.
- positivity
- Good sleep

2. What do you mean by Emotional Intelligence?

Ans

Emotional Intelligence is the ability to identify and manage one's own emotions, as well as the emotions of others.

It is generally said to include at least three skills.

- Emotional Awareness
- Harnessing Emotions
- Managing Emotions



3. What is Self Motivation? Mention the types of motivation.

Ans Self motivation is the force that drives you to do things to achieve your goals.

It is a life skill that must be necessary to develop to keep you going even in times of setback and look for new opportunities in every move of life.

Types of Motivation

1. Internal / Intrinsic Motivation.

2. External / Extrinsic Motivation.

4. What do you mean by SMART Goals?

Ans → SMART goals are Specific, Measurable, achievable, realistic and time bound objectives.

→ They provide clear direction and milestones to track progress.

5. What are the four steps for effective time management.

Ans

- | | |
|---------------|------------|
| 1. Organize | 3. Control |
| 2. Prioritize | 4. Track |