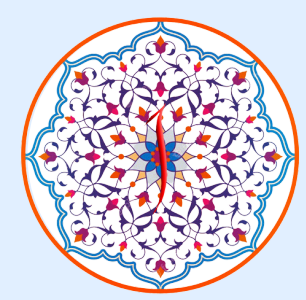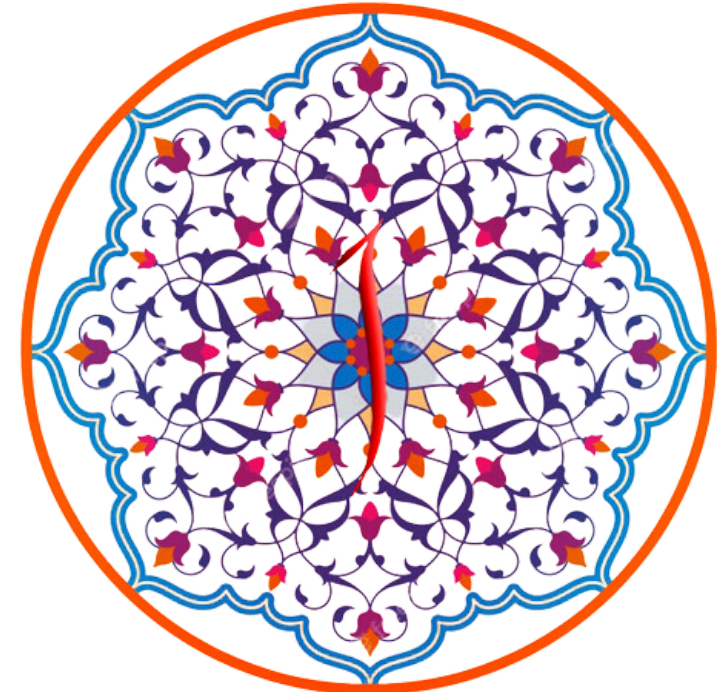# Why Probability and Statistics Matter for AI

Why Probability and Statistics Matter for AI

- **Modeling Uncertainty: Probability allows AI models to make decisions under uncertainty. For example, predicting the likelihood of an event (classification problems, recommender systems).**

- **Statistical Learning: Machine learning is rooted in statistical theory. AI models often rely on probability distributions and statistics to infer patterns and make predictions (e.g., regression, hypothesis testing).**

- **Training and Evaluation: In training AI models, probability is used to evaluate models' accuracy, calculate loss functions, and apply optimization algorithms.**

- **Overfitting and Underfitting: Statistics helps to understand model performance and ensure that models generalize well to unseen data without fitting too closely to the training set.**

THANK YOU

For AI freshers, understanding probability and statistics is key to making accurate predictions, working with data, and evaluating model performance. Concepts like probability rules, distributions, descriptive and inferential statistics provide the foundation for building effective AI models.