Final Practical

Q1 Explain mean, median, mode in the context of customer income.

⇒ * mean is the average income of all customers.

* median is the middle value when all customer incomes are arranged in order.

* mode is the income value that occurs most frequently

Q2 Differentiate between ~~Empirical probability~~. Standard Deviation and variance using loan amounts?

⇒

Standard Deviation	variance
* Standard Deviation is the square root of variance is in the same unit as Loan Amount.	* variance measures how far loan amounts spread from the mean using squared units.
* making it easier to interpret variability.	

Q3 what is a Random variable? give one example from the dataset?

⇒ A random variable represents a numerical outcome of a random process

ex. loan amount approved for a randomly selected customer.

~~random_variable = random.rDFE~~

random_var = random.choice(df["Loan_Amount"])

Q4 Explain conditional probability in terms of loan defaults?

⇒ conditional probability of loan default given that a customer belongs to a specific risk group, such as low ~~cri~~ credit score customers defaulting a loans.

Q5 Define Bayes theorem and mention how Banks can apply it

⇒ Bayes theorem explain how to update probability based on new evidence Banks used it to update the probability of loan Default when new customer.

Q6 Diffrence between Empirical probability and Theoritical probability?

⇒

Empirical probability	Theoritical probability
* Empirical probability is based on real-world data or actual observations from experiments or datasets.	* Theoritical probabili is based on mathematic Logic and assumes all outcomes are equally likely.
* formula :-	* Formula :-
P = Number of times event occurs / Total number of trials	P = Number of favorables ou / Total number of possible outc

Q7 What is poisson Distribution?

⇒ The poisson distribution ~~on~~ models the probability of a given number of events happening in a fixed interval of time, space or area if :

* event occur independently.
* Event occur at a constant ave rate
* Two or more events do not happen simultaneously.

Q8 write a short note on Eigenvalues and Eigenvectors in data analysis?

⇒ Eigenvalues represent the magnitude of variance and ~~eg~~ eigenvectors represent direction of maximum variance they are widely used in data analysis techniques like principal ~~tec~~ component.