Tutorial Sheet 1 - Questions

Please prioritise the questions marked with an asterisk (*) and the multiple-choice questions. If time permits, feel free to attempt the remaining questions. I will be reviewing all questions during the tutorial.

Data Type

Question 0 *

Give an example of each of the following data types:

i. Categorical

ii. Interval

iii. Ordinal

Measure of Locations

Question 1 *

Describe ans sketch each of the following measures of location including their the pros and cons:

i. Mean

ii. Median

iii. Variance

iv. Skewness

Counting Questions

Question 2 *

In a given card game with 52 cards each player gets four cards a hand:

i. How many different combinations of four cards can be made for a 52 card deck, when **order does** matter.

ii. How many different combinations of four cards can be made for a 52 card deck, when order **does not** matter.

iii. What is the probability of being dealt a hand with the 2 of clubs, the 3 of clubs, the 4 of clubs and the 5 of clubs, **in exact order**?

iv. What is the probability of being dealt a hand with the 2 of clubs, the 3 of clubs, the 4 of clubs and the 5 of clubs, **in any order**?

v. What is the probability of being dealt a hand with the 2 of diamonds, the 7 of spades, the 9 of clubs and the Queen of diamonds, in any order?

vi. What is the probability of being dealt a hand with at least one King, in any order?

Question 3

A bank issues bank cards with Personal Identification Numbers (PINs) consisting of 4 digits, each one $\{0,1,2,\ldots,9\}$.

A. Given that any 4-digit code can be used.

i. How many unique PINs can be generated?

ii. What is the probability of guessing someone's PIN?

iii. What is the probability of guessing someone's PIN given you know the first number?

B. The digits must be different.

i. How many unique PINs can be generated?

ii. What is the probability of guessing someones PIN?

iii. What is the probability of guessing someones PIN give you know the first number?

Question 4

In a lottery, each ticket has 5 one-digit numbers 0-9 which is not repeated on it.

A. You win if your ticket has the digits in any order.

i. What are the total number of possible combinations?

ii. What is the probability of winning?

B. You would win only if your ticket has the digits in the required order.

i. What are the total number of possible combinations?

ii. What is the probability of winning?

Question 5

A poker hand consists of 7 cards:

i. How many different hands are possible, if order does not matter.

ii. How many hands can be made with at least one king and one queen.

iii. What is the probability of being dealt a hand with at least one king and one queen?

Question 6

In a game of 5 card poker what are the number of different possible hands are there?

i. What is the probability of being dealt a hand with a pair?

ii. What is the probability of being dealt a hand with two pair?

iii. What is the probability of being dealt a hand with three of a kind and two of kind (Full House)?

iv. What is the probability of being dealt a hand with a Flush (all the same suit)?

Multiple-Choice Questions

MCQ Question 7

Which of the following is an example of an ordinal data type?

A. Temperature in Celsius

B. Eye color

C. Customer satisfaction rating (e.g., Poor, Fair, Good, Excellent)

D. Bank account number

MCQ Question 8

Which measure of location is least affected by extreme values?

A. Mean

B. Median

C. Mode

D. Variance

MCQ Question 9

How many different ways can the letters of the word "STATISTICS" be arranged?

A) 3,628,800

B) 50,400

C) 63,504

D) 1,260

MCQ Question 10

You have 10 different players and need to form a lineup of 4 players, where the order in which they are arranged does not matter. What rule should you use to calculate how many different lineups can be made?

A) Combination

B) Permutation

C) Neither

MCQ Question 11

What rule would you use to calculate how many ways can you arrange the letters in the word "BALLOON"

A) Combination

B) Permutation

C) Neither

Question 12 *

Write your own question or multiple choice question on a counting problem.

Question 101 *

What is your background/work?