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Ch. 1 - Part 2
- Chapter Quiz.

STAT.110

جمال السعدي
رياضيات - إحصاء



Ch. 1 Part. 2

Chapter Quiz

جمال السدي

Determine whether each statement is true or false if the statement is false explain why.

- ①- Probability is used as a basis for inferential statistics
- ②- The height of president Lincoln is an example of variable

طول الرئيس الأمريكي ثابتة constant
- ③- The highest level of measurement is the interval level

Ratio
- ④- When the population of college professors is divided into groups according to their rank (instructor, assistant professor. etc.) and then several are selected from each group to make up a sample, the sample is called cluster

تم التقسيم إلى طبقات مختلفة حسب الدرجة Stratified
- ⑤- The variable age is an example of a qualitative variable

البيانات اليعطيه Quantitative
- ⑥- The weight of pumpkins is considered be a continuous variable
- ⑦- The boundary of a value such as 6 inches would be 5.9-6.1 inches

5.5 - 6.5

Select the best answer.

8- The number of absences ^{غياب} per year that a worker has is an example of what type of data? عدد أيام غياب العامل سنوياً

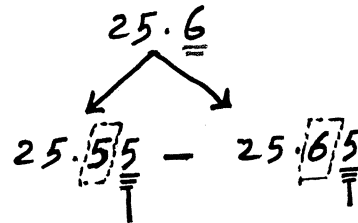
- a. nominal
b. Qualitative
c. Discrete
d. Continuous

يمثل متغير منفصل
لأنه عدد الأيام دائماً اعداد صحيحة

Discrete

9- What are the boundaries of 25.6 ounces?

- a. 25-26 ounces
b. 25.55-25.65 ounces
c. 25.5 – 25.7 ounces
d. 20 – 39 ounces



10- A researcher divided subjects into two groups according to gender ^{للنوع} and then selected members from each group for her sample. What sampling method was the researcher using?

- a. Cluster
b. Random
c. Systematic
d. Stratified

التقسيم طبقاً للنوع

∴ طبقية

Stratified

11- Data that can be classified according to color are measured on what scale?

- a. Nominal
b. Ratio
c. Ordinal
d. Interval

طبقاً للون

∴ البيانات

اسمية Nominal

يتضمن - يشمل

يغير نتيجة

- 12- A study that involves no researcher intervention is called
- An experimental study
 - A noninvolvement stud
 - An observational study
 - A quasi – experimental study

- 13- A variable that ^{يتداخل}interferes with other variables in the study is called
- An confounding variable.
 - An explanatory variable.
 - An outcome variable.
 - An interfering variable.
- ← تعريف

Use the best answer to complete these statements.

- 14- Two major branches of statistics are descriptive and Inferential.

- 15- Two uses of probability are Gambling and Insurance.

- 16- The group of all subjects under study is called a(n) population.

- 17- A group of all subjects selected from the group of all subjects under study is called (n) sample.

- 18- Three reasons why samples are used in statistics are

* ثلاث اسباب لاستخدام العينات

- a. save time b. save money c. when population is large.

19- The four basic sampling methods are....

a. Random b. systematic c. stratified d. cluster

20- A study that uses intact groups when it is not possible to
شبه
randomly assign participants to the groups is called Quasi
تجريبي
Experimental study.

21- In a research study, participants should be assigned to
المشاركين
groups random methods, if possible.

22- For each statement decide whether descriptive or
inferential statistics is used.

a. The average life expectancy in New Zealand is 78.49 years.
المتوقع
(descriptive).

b. A diet high in fruits and vegetables will lower blood
pressure.

c. the total amount of estimated losses from hurricane Hougo
كمية الخسارة المقدرة اعصار
was \$ 4.2 billion.

d. Researchers stated that the shape of a person's ear is related
مرتبط بـ أذن الشخص شكله يبين
بمدى انحراف الشخص
to the person's aggression.

(Inferential) ... يستدل بشيء على شيء آخر

خريجين

- e. In 2020, the number of high school graduates will be 3.2 million students.

(Inferential)

23- Classify each as nominal level, ordinal level, or ratio level measurement

- a. Rating of movies as PG. and R (nominal)
بالمركبة المباعه اعمدة السكر (قوالب الحلوى)
- b. Number of candy bars sold on a fund drive. (ratio)
سيارة صغيرة
- c. Classification of automobiles as subcompact, compact, standard, and luxury. (ordinal)
عادية فخمة
- d. Temperatures of hair dryers. (Interval).
مجفف الشعر
- e. Weights of suitcases on a commercial airline. (ratio)
خطوط تجاربه

24- Classify each variable as discrete or continues.

- a. Ages of people working in a large factory. (continuous)
أعمار العمال
- b. Number of cups of coffee served at a restaurant. (discrete)
المقدمه مطعم
- c. The amount of drug injected into a guinea pig (continuous)
المحقونه المخدر كمي
- d. The time it takes a student to drive to school. (continuous)
- e. The number of gallons of milk sold each day at a grocery store. (discrete)

طريقة الحصول على Boundaries

• لابد وزن الفاصلة العشرية في $class\ limits$.

• نضع الرقم 5 في نهاية الـ $upper\ limit$.

• يطرح 1 من الرقم الأخير في $lower\ limit$ ثم نضع الرقم 5.

What are the boundaries of the class limits 8.2 - 10.4?

A) 8.25 - 10.45 B) 8.15 - 10.45 C) 8.15 - 10.35 D) 8.25 - 10.35

طريقة سهلة جداً

$class\ limits : 8.2 \quad - \quad 10.4$
 * نضع 5 * * نضع 5 *
 * نطرح 1 من الرقم الأخير * * نضع 5 *
 * ثم نضع 5 * * بعد الرقم الأخير *

$\Rightarrow boundaries : 8.15 \quad - \quad 10.45$

Find the boundaries:

6.1 - 8.32 \rightarrow

* أولاً وزن الفاصلة
 6.10 - 8.32
 * ثانياً إيجاد boundaries
 6.095 - 8.325

25) Give the boundaries of each.

a. 48 seconds \rightarrow 47.5 - 48.5

b. 0.56 Centimeter \rightarrow 0.555 - 0.565

c. 9.1 quarts \rightarrow 9.05 - 9.15

d. 13.7 pounds \rightarrow 13.65 - 13.75

e. 7 feet \rightarrow 6.5 - 7.5

Which one of the following is an example of qualitative variable?

- A) Grade point average (GPA) B) Temperature C) Nationality D) Age

Nationality → qualitative variable
الجنسية ← متغير نوعي (وصفي)

The process of selecting every sixth customer entering a shopping center is called ...

- A) systematic sampling B) cluster sampling C) random sampling D) stratified sampling

sixth → systematic sampling

A researcher divided subjects into two groups according to nationality (Saudi and non Saudi) and then she selected members from each group for her sample. What sampling method was the researcher using

- A) Cluster B) Systematic C) Convenience D) Stratified

saudi and non saudi

طبقات مختلفة

→ stratified.

* التقسيم تم طبقاً لجنسية
وهي طبقات مختلفة

جزء

A portion of a population is called a ...

- A) tally. B) frequency distribution. C) sample. D) random survey.

* الجزء من المجتمع يسمى العينة .

A high school counselor selected randomly a group of students from each class to form a sample for an experimental study; this is an example of a ... sample.

- A) systematic B) cluster C) stratified D) random

* الأختيار عشوائي ← random

اقسام

What type of sampling is being used if a university is divided into departments and a random sample is chosen from each departments to be surveyed?

- A) Stratified sampling. C) Systematic sampling.
B) Random sampling. D) Cluster sampling.

جامعة مقسمة إلى أقسام :

* التقييم إلى أقسام مختلفة (طبقات)

نم الأختيار من هذه الأقسام لتكوين العينة
→ Stratified sampling

In a study it has been reported that a diet high in fruits and vegetables will lower blood pressure. The outcome variable is ...

- A) diet. B) vegetables. C) blood pressure. D) fruits.

* المتغير المتأثر هو ضغط الدم يتأثر بنوع الحميه

→ outcome variable is blood pressure

A researcher needs to conduct a(n) ... study to see if the number of people in a car is related to running a red lights.

- A) observational B) manipulative C) experimental D) independent

To see → observational study .

If we have measured the height of 20 students and compute their average, this will be an example of ...

- A) inferential statistics. C) population statistics.
B) descriptive statistics. D) predictive statistics.

average height of 20 --- → descriptive stat.

Which of the following is an example of a continuous variable?

- A) Students' identification number. C) Ranking of baseball teams in a league.
B) Students heights. D) Number of students in a statistics course

أطوال الطلاب تمثل متغير متصل .
Students heights → continuous variable.

Students' ^{العمر} age is an example of which level of measurement?
A) Nominal B) Ordinal C) Discrete D) Continuous

age → continuous متصل

Nursing Supervisors are selected using random numbers in order to determine annual salaries. This is an example of

- A) random sampling B) systematic sampling C) cluster sampling D) stratified sampling

using random numbers → random sampling

يستقى (اختيار) A high school counselor uses a computer to generate 50 random numbers and then picks students whose names correspond to the numbers; this is an example of ... sample.
A) stratified B) cluster C) random D) systematic

* استخدام الكمبيوتر لإيجاد 50 رقم عشوائى
ثم انتقاء (اختيار) الطلاب التى اسمائهم
مناظرة له 50 رقم .
هذا مثال للعينة العشوائية ← Random

What is a portion of a population called?

- A) Sample B) Tally. C) Frequency distribution. D) Random survey.

* الجزء المحدود من المجتمع ماذا يسمى؟
العينة هي جزء من المجتمع
Sample

Nationality represents a

- A) continuous variable B) quantitative variable C) discrete variable D) qualitative variable

الجنسية تمثل متغير وصفي

The number of high school graduates will be 3.2 million students in the year 2020; this is an example of ... statistics.

- A) descriptive B) empirical C) inferential D) traditional

تاريخي يدل على المستقبل

∴ inferential statistics.

The number of high school students will exceed 499999 students in ²⁰¹²2010. This statement is an example of a (an) statistics

- A) quantitative B) qualitative C) inferential D) descriptive

will (الحديث عن المستقبل) → inferential

The average life expectancy in New Zealand is 78.49 years. This statement is an example of a (an) statistics

- A) inferential B) qualitative C) descriptive D) quantitative

average → descriptive

Researchers used ... statistics to state that "The shape of a person's ears is related to the person's aggression."

- A) qualitative B) quantitative C) descriptive D) inferential

* Inferential aggression على The shape لأنه يتبدل

What type of sampling is being used if a company is divided into sections and a random sample from the sections is chosen and all the employees within the chosen sections are surveyed?

- A) Cluster sampling. C) Random sampling.
B) Stratified sampling. D) Systematic sampling.

* العينة مختارة من أقسام مختلفة من الشركة (طبقات مختلفة)
↳ stratified sampling

The process of counting the number of students in each room of building 44 at a specific time is called a (an) ...

- A) experimental study. B) count study. C) dependent study. D) observational study.

* عملية تحديد عدد الطلاب بدون تدخل للتأثير على هذا العدد
↳ observational study.

A (An) ... study need to be conducted if a researcher would like to compare the effectiveness of three types of medicines.

- A) observational B) manipulative C) experimental D) independent

* عملية مقارنته تأثير أنواع مختلفة من الدواء (حدث تدخل بتحديد نوع الدواء)
↳ experimental study

Temperature is an example of what level of measurement?

- A) Interval. B) Ratio. C) Nominal. D) Ordinal.

Temperature → interval level of measurement.

The color of the cars that are parked along a street, is an example of which level of measurement?

- A) Ordinal. B) Nominal. C) Ratio. D) Interval.

* الألوان متغير أسمى
The color of cars → Nominal level of measurement.

If a variable can take any value between 0 and 20, then this variable is ...

- A) continuous and qualitative. B) discrete and quantitative. C) continuous. D) discrete.

* المتغير الذي يأخذ أي قيمة (عدد صحيح أو كسر) بين 0 ، 20
هو متغير متصل

any value → continuous.

“ A variable that interferes with other variables in the study is called a(n) ...variable.”
 A) confounding B) interfering C) outcome D) explanatory

المتغير المتداخل : هو المتغير الذي يتداخل مع متغيرات أخرى.
 تعريف (يحفظ)

The score on an IQ test is an example of which level of measurement
 A) nominal B) ordinal C) interval D) ratio

IQ test → **Interval**
 اختبار الذكاء

A researcher stood at a busy intersection to see if the color of the automobile that a person drives is related to running red lights. The type of study used here is ... study.
 A) experimental B) convenience C) observational D) quasi-experimental

كلمة to see تدل على أنه الباحث شاهد ولم يؤثر

↓ **observational**

السيارات تصنيف
 Classification of automobiles as Nissan, Mercedes, Lexus, and Honda is an example of ... data.
 A) ordinal B) continuous C) discrete D) nominal

* تصنيف السيارات :

نيسان ، مرسيدس ، لكزس ، هوندا

بيانات اسمية ← **nominal**

All subjects that are being studied is called ...

- A) population. B) sample. C) parameter. D) statistic.

* All subjects → population .

A ... is a group of subjects that are being studied.

- A) statistic B) population C) parameter D) sample

* group of subjects → sample .

طبقات

Classification of employees in a company according to their employment levels is an example of ... data.

- A) ordinal B) discrete C) nominal D) continuous

تصنيف الموظفين في شركته طبقاً لمستويات تدرجهم الوظيفية (طبقات مرتبة).

* employment levels → ordinal

Capacity of six dams in Saudi Arabia is an example of a(n) ... variable.

- A) ordinal B) nominal C) continuous D) discrete

* Capacity → continuous

Temperatures inside 9 refrigerators is an example of what level of measurement?

- A) Ordinal. B) Nominal. C) Interval. D) Ratio.

* Temperatures → Interval level of measurement.
درجات الحرارة

The number of trees in a garden is an example of a(n) ... variable.

- A) continuous B) discrete C) nominal D) ordinal

عدد الأشجار في الحديقة مثال للمتغير المنفصل .

* number of trees → discrete variable.

The average shoe size of Saudi's students is an example of which level of measurement?

- A) Ratio B) Interval C) Nominal D) Ordinal

The average shoe size ---
is an example of Interval level measurement

تعليم (مدرسي)

Subjects were assigned randomly to two groups for an educational study. One group was taught using the traditional method and the other group using a new method. After 3 years, the students performance of the groups were compared.

What is the type of this study?

- A) Experimental study. C) Convoluted study.
B) Quasi-Experimental study. D) Observational study.

* التقييم إلى مجموعتين : (تحديد نوع الطريقة يعني تدخل في التجربة)
التعليم من أحدهما بالطرق التقليدية ، من الأخرى بالطرق الحديثة
بعد ثلاث سنين تم مقارنته ومدى استفادته
الطلاب من المجموعتين ← دراسة تجريبية .

What is the dependent variable in this study?

- A) Method of teaching. C) Students performance.
B) Period of study. D) Number of groups.

* المتغير التابع (المتأثر) هو مدى استفادته الطلاب
students performance.

السرعة عدد الحوادث

In the relationship between the number of accidents and speed, the speed is assumed to be ...

- A) qualitative variable B) independent variable C) dependent variable D) nominal variable

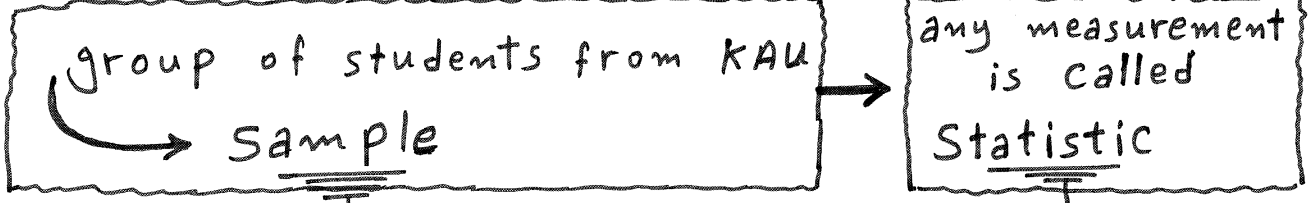
The speed (المؤثر)

is independent variable متغير مستقل

When a study is conducted on a group of students from KAU, every measurement calculated for this study would be called a ...

- A) statistic. B) sample. C) population. D) parameter.

هذه المجموعة تمثل فيها
المقاييس المستخدمة يسمى احصاء



If we have calculated the average height of 200 students and used it as an estimate for the average height for all students, this will be an example of ... statistics.

- A) inferential B) population C) descriptive D) predictive

استخدام عينه للتعميم على المجتمع ← (احصاء استدلالي)

* استخدام عينه مكونه من أطوال 200 طالب
للتنبؤ (تحسين) متوسط أطوال كل الطلاب ← Inferential

The average shoe size of Saudi's students is an example of which level of measurement?

- A) Ratio B) Interval C) Nominal D) Ordinal

average shoe size → Interval

In a study it has been reported that a diet high in fruits and vegetables will lower blood pressure. The dependent variable is ...

- A) blood pressure. B) fruits. C) vegetables. D) diet.

* المتغير التابع هو ضغط الدم blood pressure → dependent
* المتغير المستقل هو الحميه (الرجيم) diet → independent

If the values of a variable are determined randomly, then this variable is called ...

- A) constants variables. B) independent variables. C) intact variables. D) random variables.

* المتغير العشوائي؛ هو المتغير التي تحدث قيمه عشوائياً (بالصدفه).

The variable that is resulted from an experimental study is called ... variable.

- A) dependent B) independent C) confounding D) explanatory

* المتغير الناتج (المحصل) من درسه تجريبيه يسمى متغير تابع
→ dependent

Use the best answer to complete these statements.

- Majors of high school students →

Nominal

* تخصصات الطلاب
في المدارس الثانوية
تمثل بيانات اسمية .

- Amount of fat (in grams) in 6 Cookies →

Ratio

* كمية الدهون بالجرامات في ...

- Rating of hotels by a number of stars →

Ordinal

* تصنيف الفنادق بعدد نجومها
تمثل بيانات ترتيبية .

- Study that involves No researcher intervention is

called → Observational study

* الدراسة التي تتضمن عدم تدخل الباحث ... (دراسة مشاهدية)
يغير النتيجة

- One advantage of Observational study is that

it occurs in a natural setting.

* احد مميزات الدراسة المشاهدية انها تتم من ظروف طبيعية

- Performing estimations and hypothesis tests are

example of : ➔ Descriptive statistics

* تقديم التقديرات واختبارات الفروض مثال للأعداد الوصفية.

- If a variable has the possible values:

-2 , 4 , 6 , 10 and 12

Then this variable is ➔ Discrete variable

* المتغير الذي قيمته الممكنة (اعداد صحيحة ليس بينها كسور)
مثال للمتغير المنفصل .

- Temperature , IQ test and average shoe size

are ➔ Interval level data

* درجة الحرارة ، اختبار الذكاء ، متوسط مقاس الحذاء ...
كلها أمثلة لـ مقاييس الفترة .

- Height , weight , time , age , salary and number of ...

are ➔ Ratio level data

* الطول ، الوزن ، الوقت ، العمر ، الراتب ، عدد ...
كلها أمثلة لـ مقاييس النسبة .

تعريفات مهمة

- Probability is chance of an event occurring.
- Probability deals ^{يتعامل} more with creating models and theoretical data.
- while statistics deals more with applying models and real data.

- Data are the values of variables can assume.
- Each value in the data set is called a data value or a datum.
- A data set is a collection of data values.

Statistical studies usually include one or more independent ^{متغير مستقل أو أكثر} variables and one dependent ^{متغير واحد تابع} variable.

- Inferential statistics is based on probability theory ^{نظرية الاحتمالات}.
- The two major areas of statistics are descriptive and inferential.

Observational study: the researcher observes what is happening or what has happened and tries to draw conclusions based on these observations.

Experimental study: the researcher ^{يؤثر على} manipulates one of the variables and tries to determine how that ^{يؤثر} influences other variables.

Random samples: are selected using chance methods or random methods.

Systematic samples: numbering each subject of the populations and then selecting every K^{th} number.

Stratified samples: dividing the population into groups called strata according to some characteristic that is important to the study, then sampling from each group or strata.

Cluster samples: intact groups called clusters. Thus, dividing the population into groups and then taking samples of the groups.

The independent variable or explanatory variable is the one that is being manipulated by the researcher.

When the populations to be studied are large. Statisticians use subgroups called samples.

In an experimental study, the subjects should be assigned to groups randomly. If this is not possible, then it is called a: quasi-experimental study.

Descriptive statistics; consists of the collection, organization, summarization, and presentation of data.

Inferential statistics: consists of generalizing from samples to populations, performing estimations and hypothesis testing, determining relationships among variables, and making predictions.

A variable is a characteristic or attribute that can assume different values.
* المتغير: هو الخاصية أو الصفة التي تأخذ قيم مختلفة.

Random variable have values that are determined by chance.

* المتغير العشوائي: هو المتغير الذي تحدث قيمه بالصدفة.

انتهى ① Ch.

وأخيراً
أدعو الله أن يتقبل هذا العمل
ويكون فيه النفع للجميع
جمال السعدي

كل التمنيات بالنجاح والتوفيق