

MA 209, Guided Notes §1.1 – §1.4

Terminology and Basic Graphs

1 Data

Def: Data Analytics is analyzing data for the purpose of gaining insight into a situation. The three main types are:

- _____
- _____
- _____

Def: A _____ is a characteristic of an individual to be measured or observed in a study.

Def: A _____ variable has observations with numerical values on which meaningful mathematical operations can be performed. These are characteristics that are _____ rather than counted.

Def: A _____ , or _____ , variable has observations that can be categorized or grouped. These are characteristics that are usually _____ rather than measured.

Def: A quantitative variable is _____ if its possible values form a set of separate numbers such as $\{0, 1, 2, 3, 4\}$.

Def: A quantitative variable is _____ if its possible values come from an interval of values such as $(0, 4)$.

Def: A categorical variable that can be ordered sensibly is called a _____ variable.

Def: A categorical variable that can not be ordered sensibly is called a _____ variable.

2 Data Visualization

Data visualization is the process of displaying data with a visual format such as a _____ or a _____.

Some charts are better for smaller data sets while others are better for large data sets.

Def: The number of unique elements in a set is called its _____.

Charts that are best for low cardinality sets include the

_____, _____, and _____.

Charts that are best for high cardinality sets include the

_____, _____, and _____.

3 Python

Python includes the data types:

- int: _____
- float: _____
- string: _____

- boolean: _____

Python uses these data structures:

- {set, ...}
- [list, ...]
- dictionary: { key:value, key:value, ... }

A common Python module for working with data is called **pandas**. It must be imported into Python before use.

Def: A **dataframe** is a two-dimensional data structure, like a spreadsheet, that pandas uses. We will mostly create dataframes by importing Excel or CSV files that will be automatically converted.

When reading the zyBook:

- Take notes as you would from a lecture.
- Keep track of where helpful code examples are. These can come in handy when it's time to do lab.
- Keep a running “quick reference” sheet of Python commands. This will also come in handy when programming so you won't always have to dig through the text to find them.
- You can also download these kinds of sheets to use.