Recruitment and Data Collection

ICS 491

Part 0: Milestone #2 - Related Work

Examples of Good Related Work Pieces

- https://www.embopress.org/doi/pdf/10.15252/msb.20156651 - see sections after the Introduction section

- https://www.annualreviews.org/doi/pdf/10.1146/annurev-biodatasci-020722-125454 - see sections after the Introduction section

- https://www.annualreviews.org/doi/pdf/10.1146/annurev-biodatasci-080917-013343 - see sections with lots of citations

Important Qualities of a Related Work Section

- Do ***NOT*** summarize each article one-by-one without relating them. Only doing this will lose you points.

- Instead, find general trends in your topic and group the related papers into themes.

- For example:
  - "Some digital educational apps are of a one-size-fits-all nature. For example, LastName1 et al. built an educational tool which provides a fixed series of gamified educational experiences [1]. Similarly, LastName2 et al. … [2]. Other digital educational apps are adaptive to the learner's skills and trajectory. Some of these adaptive apps use logic and rules to adapt the experience. For example, LastName3 et al. … [3]. Other adaptive educational apps use machine learning to customize the learner's experience. For example, LastName4 et al. … [4]. Similarly, LastName5 et al. … [5]."
  - The above is an excellent outline for a Related Work section. In addition to the summary above, your Related Work would include a few introductory sentences, a few sentences interspersed which discuss the pros and cons of each identified theme, and a final couple of sentences describing how your project extends beyond what has been done before.

- Do not summarize the entire paper, but instead only discuss the relevant aspects to the topic of your project. You should spend no more than 1 or maybe 2 sentences discussing any particular prior paper.

More Important Qualities of a Related Work Section

- Demonstrate a clear connection between the reviewed literature and your final project.

- Identify gaps or opportunities for further exploration based on the reviewed literature.

- Identify strengths and weaknesses of prior themes.

- This assignment is only half a page. Focus on conciseness of writing where all your ideas fit in half a page, rather than verbose writing that doesn't say anything.

Part 1: Recruitment

Questions to Consider

- How many people to recruit?

- Where should you recruit from?

- What type of people should you recruit?

- What conclusions can you draw based on the recruited population?

How Many to Recruit

- Use a **power calculation**

- Inputs:
  - Probability of false positive (alpha)
  - Probability of false negative (beta)
  - Estimated mean for group 1
  - Estimated mean for group 2

- Output: sample size required

How Many to Recruit

Example:
https://clincalc.com/stats/samplesize.aspx

Where to Recruit From

- Social Media Posts

- Targeted Advertising

- Email Lists

- Extra Credit in a Class

- Flyers Posted on Campus

- …Where else?

Where to Recruit From

- Social Media Posts

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- ...Where else?

What are pros and cons of each?

What Type of People to Recruit

- Ensure that people's attributes are equal across groups

- Ensure that you can draw the conclusions you want from your study population

Drawing Conclusions Based on Population
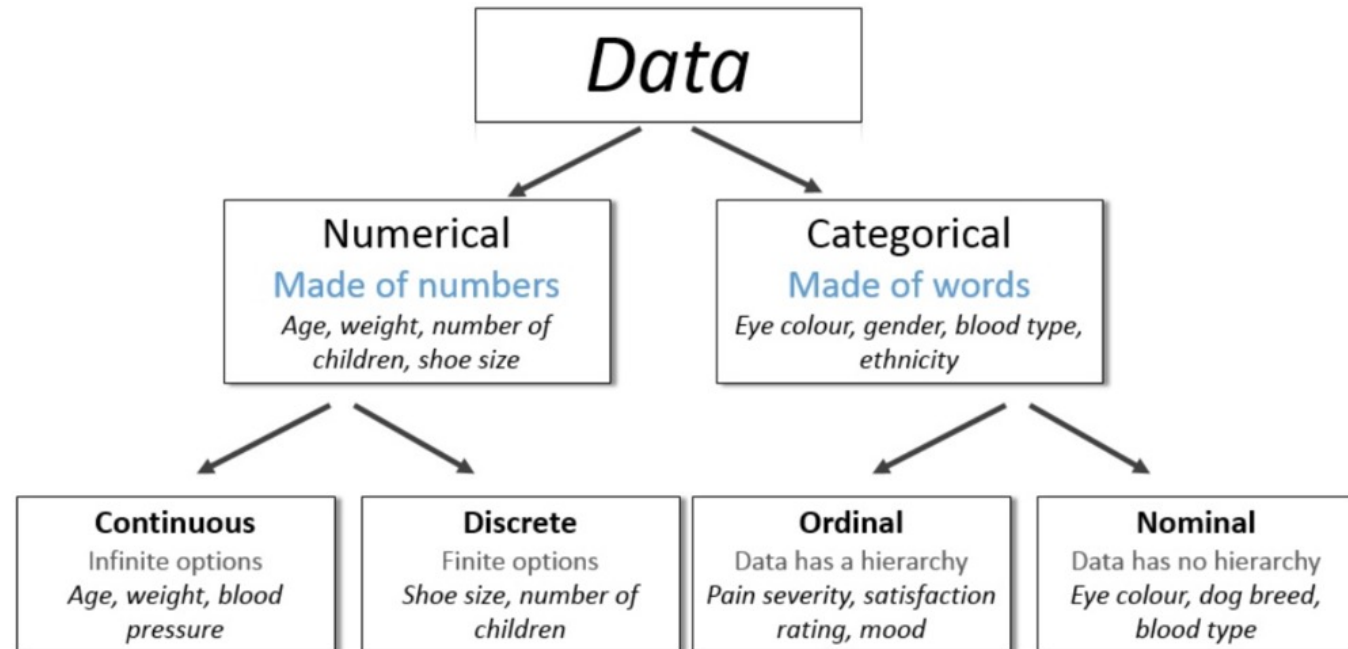
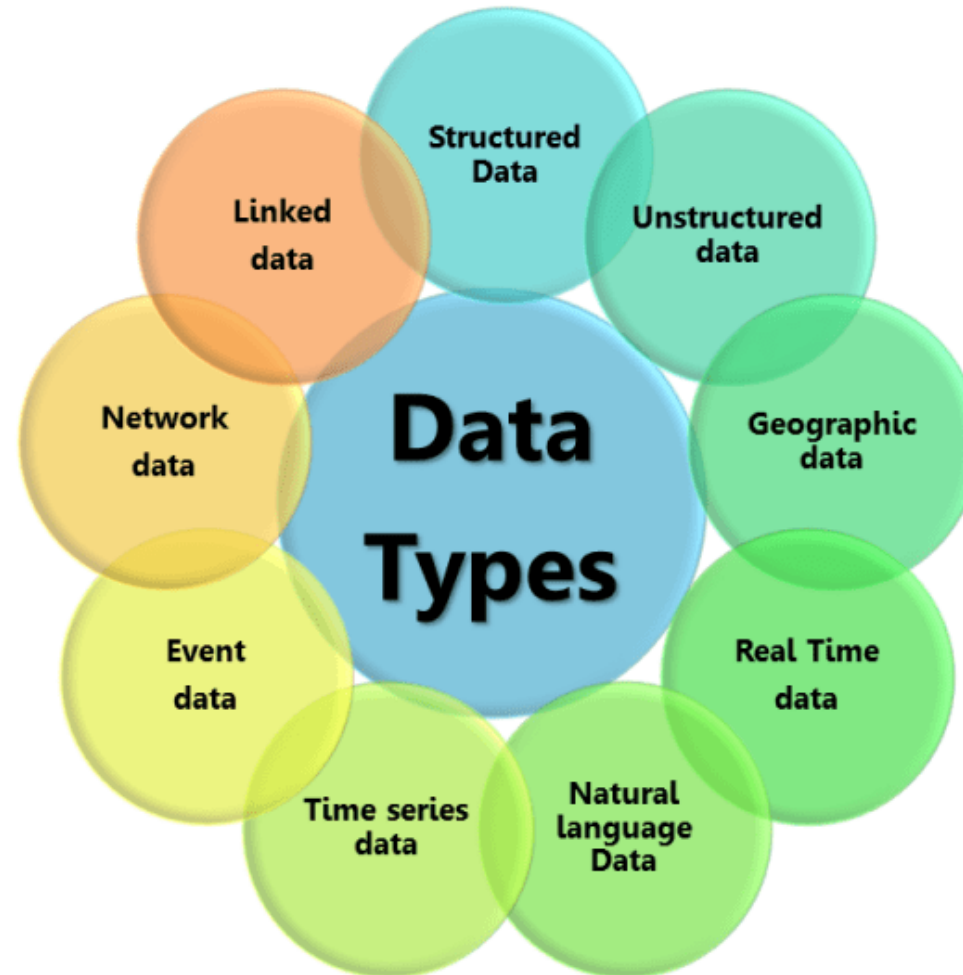# Words of Wisdom from Industry

Part 2: Data Collection

Questions to Consider

- What type of data to collect?
- Where should collected data be stored?
- How will data be collected?
- Who is collecting the data?
- How to ensure consistency during the collection process?
- How to ensure privacy during the collection process?

Types of Data to Collect

Data

Numerical
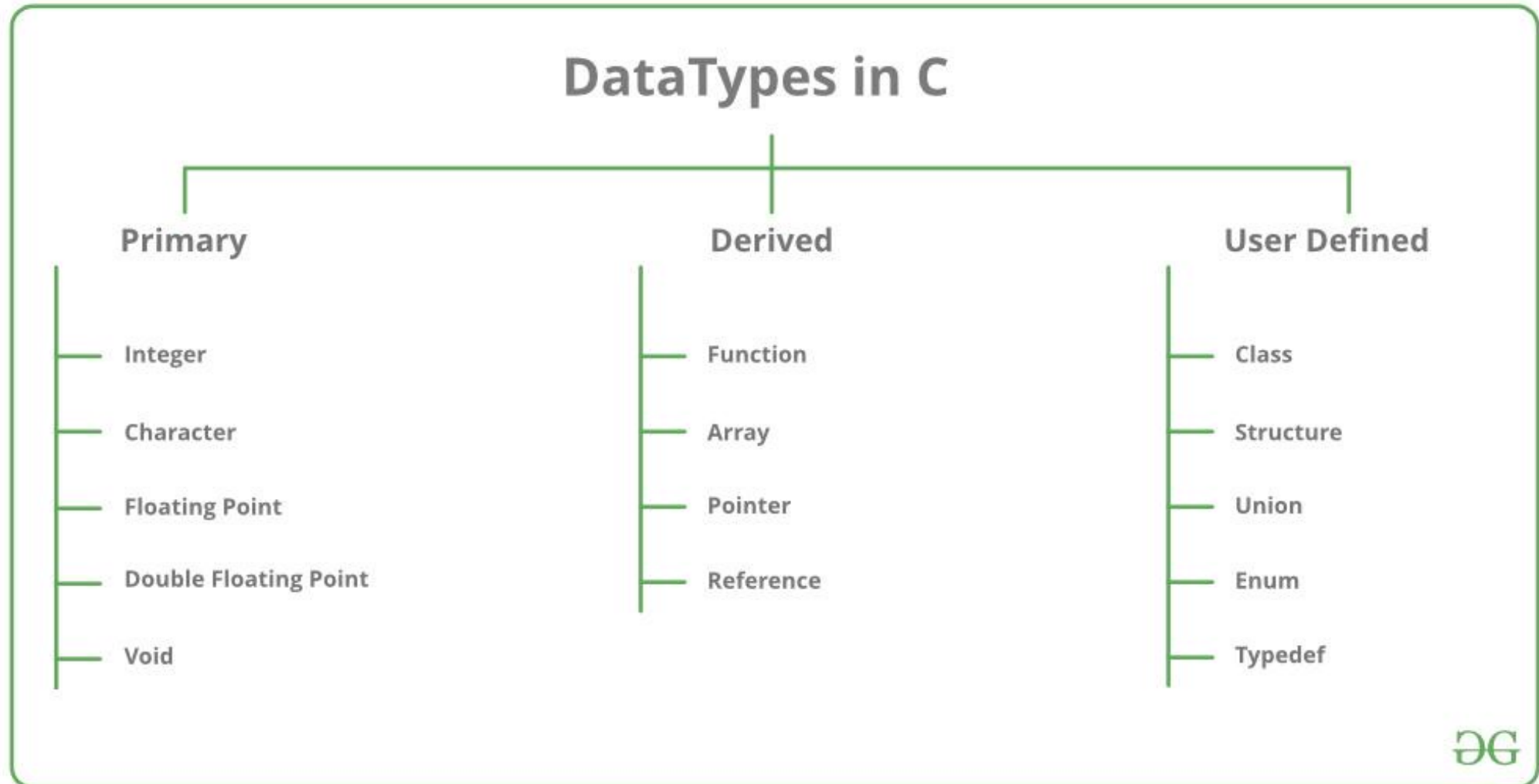Made of numbers
Age, weight, number of children, shoe size

Categorical
Made of words
Eye colour, gender, blood type, ethnicity

Continuous
Infinite options
Age, weight, blood pressure

Discrete
Finite options
Shoe size, number of children

Ordinal
Data has a hierarchy
Pain severity, satisfaction rating, mood

Nominal
Data has no hierarchy
Eye colour, dog breed, blood type

Types of Data to Collect

Types of Data to Collect

Source of data	Research Methods	Format of data
Interview talk	Interviews	Recorded speech
Reports, diaries, minutes of meetings, Scripts (e.g.for political speeches)	Documents	Printed text
Interactions between people (including actions, responses, language) Events (e.g. ceremonies, rituals) Artefacts, symbols, cultural objects (e.g. paintings)	Observation	Photographs Pictures Video recordings
Answers to open-ended questions	Questionnaires	Printed text

Adapted from Denscombe (2010. p. 273)
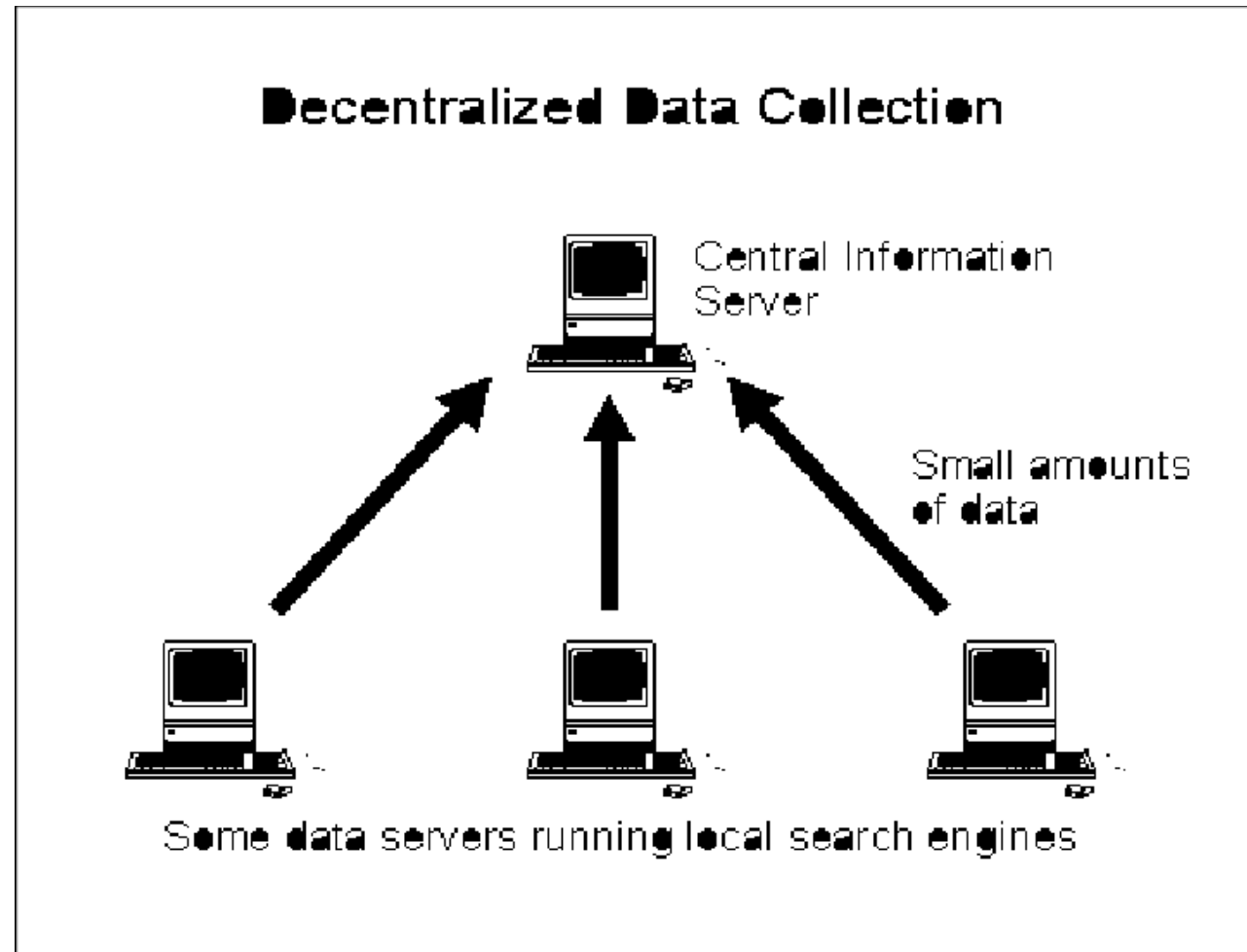
Types of Data to Collect

DataTypes in C

Primary	Derived	User Defined
Integer	Function	Class
Character	Array	Structure
Floating Point	Pointer	Union
Double Floating Point	Reference	Enum
Void		Typedef

GG

Data Storage

MySQL DATA TYPES

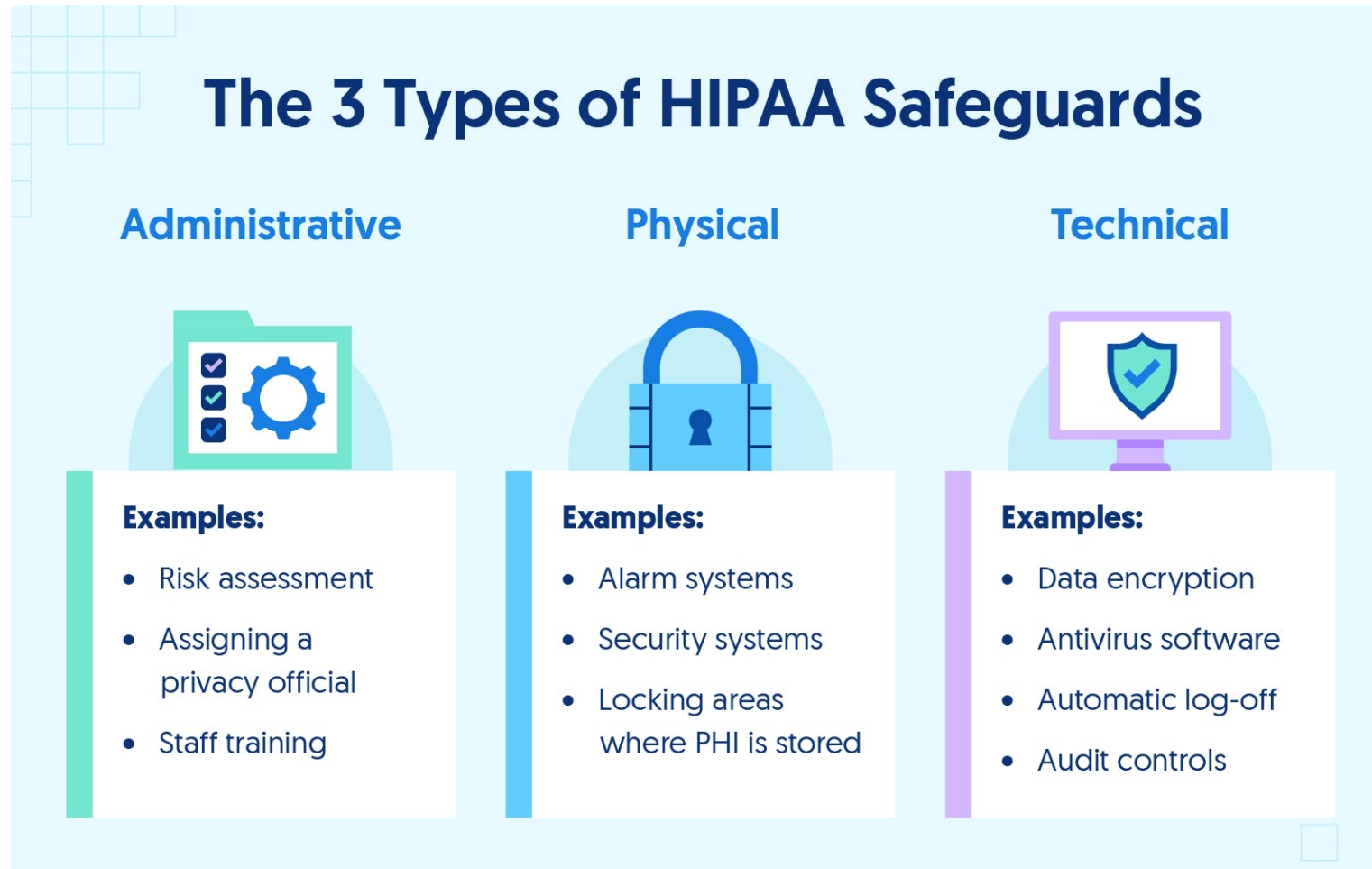| DATE TYPE	SPEC	DATA TYPE	SPEC
CHAR	String (0 - 255)	INT	Integer (-2147483648 to 214748-3647)
VARCHAR	String (0 - 255)	BIGINT	Integer (-9223372036854775808 to 9223372036854775807)
TINYTEXT	String (0 - 255)	FLOAT	Decimal (precise to 23 digits)
TEXT	String (0 - 65535)	DOUBLE	Decimal (24 to 53 digits)
BLOB	String (0 - 65535)	DECIMAL	"DOUBLE" stored as string
MEDIUMTEXT	String (0 - 16777215)	DATE	YYYY-MM-DD
MEDIUMBLOB	String (0 - 16777215)	DATETIME	YYYY-MM-DD HH:MM:SS
LONGTEXT	String (0 - 4294967295)	TIMESTAMP	YYYYMMDDHHMMSS
LONGBLOB	String (0 - 4294967295)	TIME	HH:MM:SS
TINYINT	Integer (-128 to 127)	ENUM	One of preset options
SMALLINT	Integer (-32768 to 32767)	SET	Selection of preset options
MEDIUMINT	Integer (-8388608 to 8388607)	BOOLEAN	TINYINT(1)

Data Collection Procedures

Data Collection Consistency

Data Collection Privacy

HIPAA: Health Insurance Portability and Accountability Act (1996)

The 3 Types of HIPAA Safeguards

Administrative

Examples:
- Risk assessment
- Assigning a privacy official
- Staff training

Physical

Examples:
- Alarm systems
- Security systems
- Locking areas where PHI is stored

Technical

Examples:
- Data encryption
- Antivirus software
- Automatic log-off
- Audit controls

Data Collection Privacy

HIPAA: Health Insurance Portability and Accountability Act (1996)