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D212 Data Mining II – Task 2 Western Governor’s University

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# Part I: Research Question

## Define PCA Research Question

\*\* Propose **one** question relevant to a real-world organizational situation that you will answer by using principal component analysis (PCA).

In the interest of aiding in strategic planning for our hospitals, we will be asking the question “Given the dataset provided in the “medical\_clean.csv” file, can we use Principal Component Analysis uncover larger trends in our patient data?”

## Define PCA Goal

\*\* Define **one** goal of the data analysis. Ensure that your goal is reasonable within the scope of the scenario and is represented in the available data.

# Part II: Method Justification

## Explain PCA analysis and expected outcomes

\*\*Explain how PCA analyzes the selected data set. Include expected outcomes.

Principal Component analysis is used to help find patterns in high-dimensional datasets.

## Summarize one assumption of PCA

\*\*Summarize **one** assumption of PCA

# Part III: Data Preparation

## Identify continuous dataset variables to answer research question

\*\*Identify the continuous dataset variables that you will need in order to answer the PCA question proposed in part A1

## Standardize continuous dataset variables

\*\*Standardize the continuous dataset variables identified in part C1. Include a copy of the cleaned dataset.

# Part IV: Analysis

## Determine matrix of all principal components

\*\*Determine the matrix of all the principal components.

## Identify the total number of principal components using elbow rule

\*\* Identify the total number of principal components using the elbow rule or the Kaiser criterion. Include a screenshot of the scree plot.

## Identify variance of each principal component

\*\* Identify the variance of each of the principal components identified in part D2.

## Identify total variance captured by the chosen principal components

\*\*Identify the total variance captured by the principal components identified in part D2.

## Summarize results of analysis

# Part V: Attachments

## Code citations

## Bibliography