

Cairo University

Faculty of Computers and Artificial Intelligence

Information Technology Department

Third Year (2023-2024)

Pattern Recognition

Research Project (10 marks)

Select one of the following problems with an associated dataset

Examples

1. heart diseases predection

<https://www.kaggle.com/competitions/FCIS-BIO-1/data>

2. Diabetes prediction dataset

<https://www.kaggle.com/datasets/iammustafatz/diabetes-prediction-dataset>

3. Mobile Price Classification

<https://www.kaggle.com/datasets/iabhishekoofficial/mobile-price-classification>

4. Cancer Data

<https://www.kaggle.com/datasets/erdemtaha/cancer-data>

5.Heart Attack Analysis & Prediction Dataset

<https://www.kaggle.com/datasets/rashikrahmanpritom/heart-attack-analysis-prediction-dataset>

6.COVID-19 Dataset

<https://www.kaggle.com/datasets/meirnazri/covid19->

dataset

7. Customer Clustering

<https://www.kaggle.com/datasets/dev0914sharma/customer-clustering>

8. Iris Flower Dataset

<https://www.kaggle.com/datasets/arshid/iris-flower-dataset>

9. Abalone Dataset

<https://www.kaggle.com/datasets/rodolfomendes/abalone-dataset>

10. Covid_w/wo_Customer Chest Xray

<https://www.kaggle.com/rashikrahmanpritom/covid-wwo-pneumonia-chest-xray>

Requirements:

- Build a complete pattern recognition system to solve the selected problem.
- Coding of your work [will be discussed in the lab: week starting from 18/5/2024 **(7 marks)**]
- A report that describes your methodology for solving the problem, and the detailed result of your implementation **(3 marks)**
- Using swarm optimization technique for feature selection **[1 bonus]**
- Using feature reduction technique instead of PCA **[1 bonus]**

Notes

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- Each group consists of 5-6 students.
- You can implement any feature extraction or classifier (whether you study in the course or not)
- Deep learning-based systems are not allowed.
- Groups with the same project will be discussed by the same TA (So be sure to have a different methodology in your implementation)
- You will submit your report before the coding discussion (the day will be announced later)

Good Luck all