MRI Alzheimers **Comparisons of Demented and Non-demented Adults using datamining**

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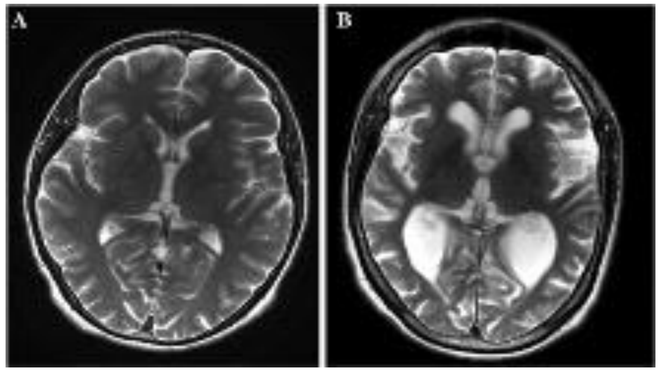
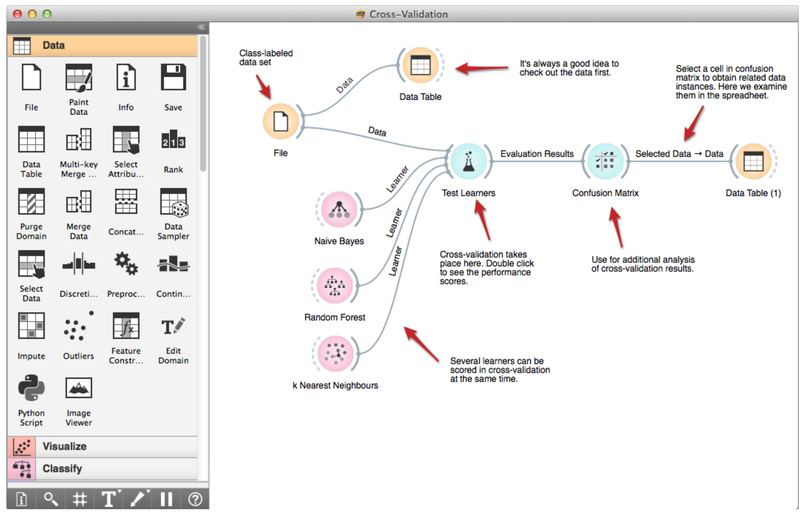
Introduction

- Alzheimer's is an inversable progressive brain disorder that slowly destroys memory and thinking skills. Alzheimer can be diagnosed using magnetic resonance imaging(MRI), a technique used to produce a detailed image of the anatomy(Brain). Using the process of data mining, which analyzes hidden patterns of data in different perspectives, a comparison will be made to show differences between MRI scans of younger adults and older adults. Before machine learning, extracting data needed human experts that often requires a lot of time, money and effort. So researchers are focusing on developing deep learning models for accurate disease diagnosis. Healthcare data mining tries to solve real world health problems in diagnosis and treatment diseases with the purpose of improving medical diagnosis, identifying the courses of the disease and predicting the patients' health condition in the future.





Methodology

- **Orange** is a data mining tool that performs data analysis using clever data visualization. It explores statistical distribution, box plot and scatter plot, or decision trees, hierarchal clustering, heat maps, MDS and linear projections. The main focus is using data analysis instead of coding.
- To reach appropriate findings, a data set which includes 400 records of demented and non-demented individuals, will be broken down into two groups. The first is longitude MRI data in demented and non-demented older adults. Whilst the second is Cross-sectional MRI data in Young, Middle-aged, and demented and non- demented adults. Based on the software applied ,Orange, the dataset will analyzed and compared to gain the best possible outcomes.

Results

- In this section, the results that will be obtained using a dataset is presented. Begins by presenting the database which will be conducted in tests, and then, present the results according to the used structure. Based on the previous review of some studies related to the problem domain, it is concluded that there are several data mining techniques that proved to be successful in the early diagnosis of the disease. With the help of this research, more knowledge of how MRI is used to predict and or compare demented and non-demented adults. The data set provided compares the MRI of demented, mild, and non-demented adults. Expecting the result to illustrate that patients within the age 60 to 96 are more likely to be demented rather than younger adults.

Conclusion

Overall, data mining's strong impact on diagnoses will make a great change when it comes to accuracy and effort. By opening up this gateway for technology we believe it can be used successfully for other classification problems of medical domain. Medical data mining in healthcare is viewed as an important yet complicated task that needs to be executed correctly and efficiently

Reference

- https://pdfs.semanticscholar.org/7413/739f99c7e9225b14e8db68bf60101d56c77a.pdf
  https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2895005/
- https://www.nia.nih.gov/health/what-alzheimers-disease
- https://pdfs.semanticscholar.org/c48c/10f16be2e81fd8548069218b58c167bc8de4.pdf