

Cohort and Trajectory Analysis in Multi-Agent Support Systems for Cancer Survivors

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Summary

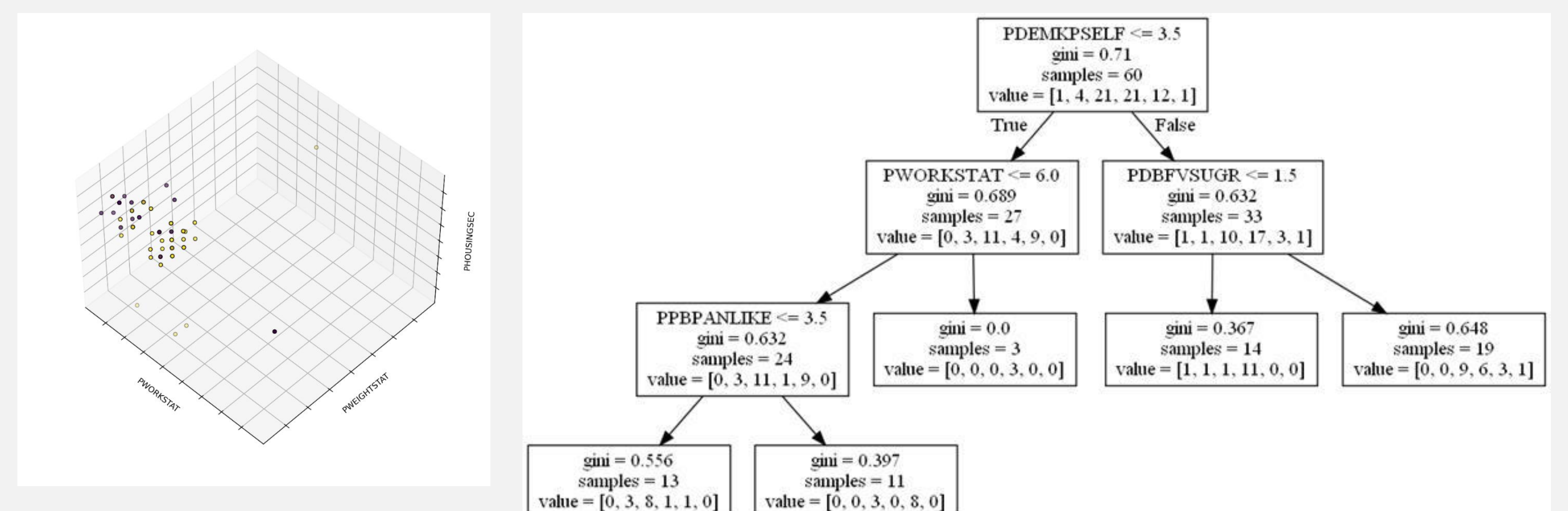
1. Research into the technologies behind chat-bots and their use cases
2. Development of a proof-of-concept application to gather cancer patient behavioral data
3. Analysis of the FLASHE dataset using Machine Learning techniques

Introduction

- Cancer is an illness that affects millions every year, leaving many individuals and families suffering both physically and mentally
- Aim to create a proof-of-concept chat application that can gather data about cancer survivors' behavior and tendencies
- The FLASHE dataset was analyzed using supervised Machine Learning techniques and conclusions drawn

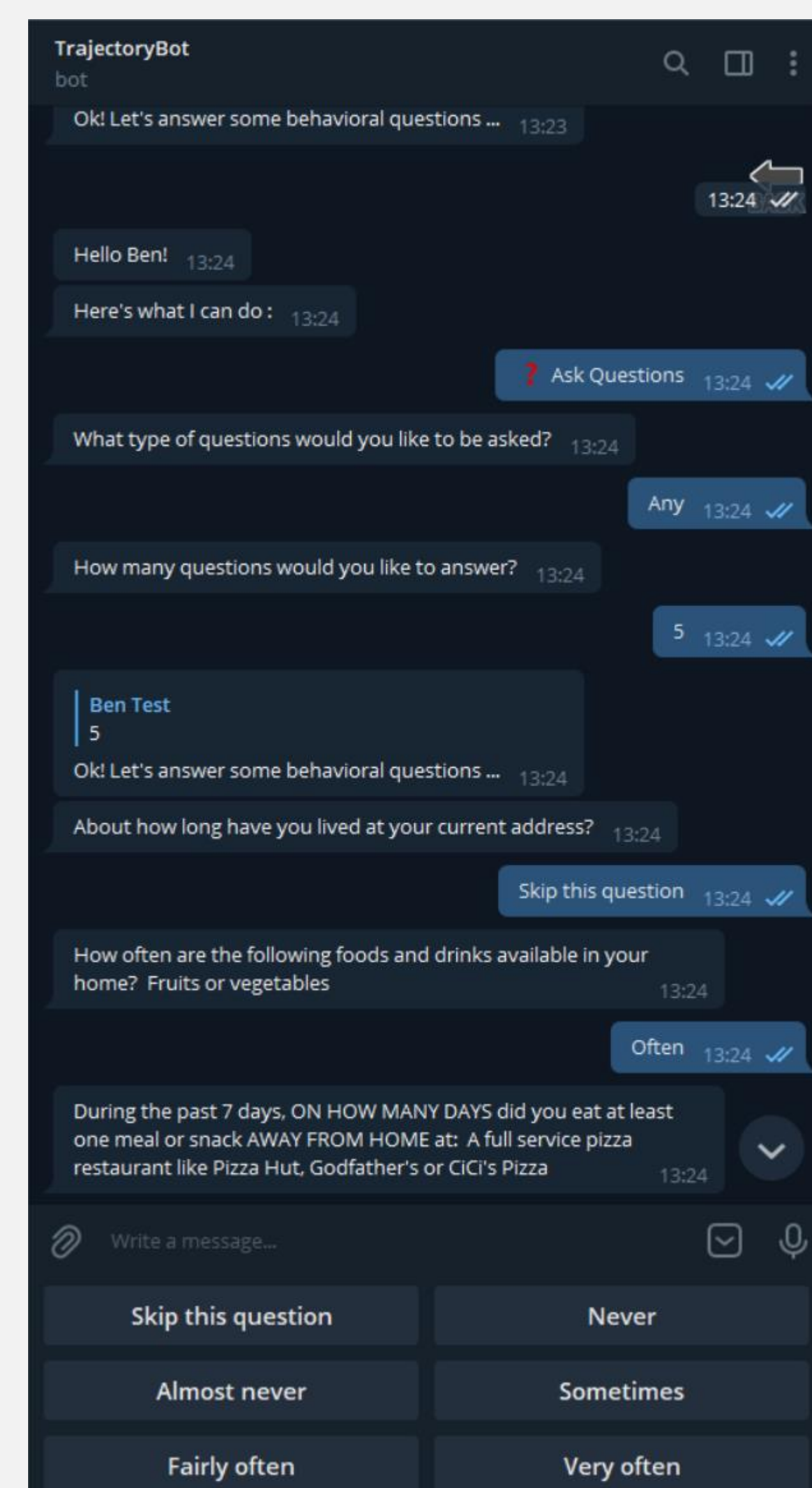
Data Analysis

- K-means clustering (k = 2)
- Decision-tree analysis of how patient's behavioral data can predict the patients health score



Proof of Concept Application

- Telegram chat API
- EREBOTS multi-agent chatbot framework



Methods

- Proof-of-concept application was developed in the EREBOTS chat-bot framework. The goals of this application were to:
 1. Explore the use of multi-agent systems
 2. Comply with European data protection laws
 3. To collect behavioral data from cancer patients
 4. Be compatible with four languages
- Data-analysis performed in Python using the SCIKIT package. The principal analyses made were:
 1. K-means clustering
 2. Decision-Tree analysis

Conclusions

- The preliminary results obtained from analysis show two types of patient emerging
- The decision tree analysis shows that the patients health can be predicted to a degree using their behavioral data
- For more conclusive results data would need to be collected using the developed application, and further analyses completed