Artifical Intelligence Course Project

Designing an Expert System for deciding where to travel using CLIPS

by - Hafiz Ali Mohamed Hanif (IIT2019159)
and Kunal Raju Pende (IIT2019187)

Introduction

The study of visitor decisions and choices has become increasingly important. Academic and scientific circles, as well as travel professionals and those in charge of tourist policy, are interested in the characteristics, determinants, and forecasting of tourist satisfaction. In addition, incorporating expert systems into tourism policy can be a useful tool in the decision-making process in tourist destinations for better understanding of traveler preference formation and choice.

Tourism is regarded as a vital activity in the lives of nations because of its direct influence on national societies' social, cultural, educational, and economic sectors, as well as on their international relations." Because of its growing and broader impact on society, as well as the resulting need to investigate and comprehend it, it is crucial to define what tourism is, which is especially significant from a statistical standpoint.

Base Papers

The base paper that we have selected for our course project in order of their priority are the following:-

1. **An Expert System for Recommendation Tourist Destinations:- An Innovative Approach of Digital Marketing and Decision-Making Process.**
2. **Tourism Expert System With Clips.**

LITERATURE SURVEY

The importance of tourism and its widespread effects were recognised in the Manila Declaration on World Tourism, which stated, "Tourism is considered an activity essential to the life of nations because of its direct effects in the social, cultural, educational, and economic sectors of national societies, as well as on their international relations," **at the World Conference on Tourism in Manila in 1980**.

Other researchers have integrated neuroscience and neuro-marketing tools and methods to test the cognitive and emotional parameters that are involved in the consumer preference of a tourist destination **(Ramsoy et al., 2019)**, which is an innovative approach to the consumer decision making process. The goal of this research is to develop an expert system that takes into account a wide range of characteristics and can help consumers choose a travel destination.

PROBLEM STATEMENT AND PROJECT SCOPE

Statement 1: Easy to use and straight forward user experience

We have to make sure that the interface that we provide to the user will be pretty much easy and straightforward considering the type of consumer that approaches the system.

People who use the system won't necessarily be comfortable with advanced user interfaces and we have to find a suitable way to tackle this problem so that it looks approachable for people from either end of the spectrum.

Statement 2: A well made dataset to easily classify facts and narrow down user preferences

In order to narrow down user preferences we need to first have a well defined data set which can be described as one which has all the must have information for a person who is searching for a place to travel to.

There are alot of attributes when it comes to tourism and selecting a few from it and collecting a dataset that is large enough to consider almost all forms of inputs is a real challenge.

Statement 3 : Application of GUI for better understandability instead of the IDE

Even if the system is simple a proper GUI will help users to easily distinguish what goes where and also makes the system more attractive.

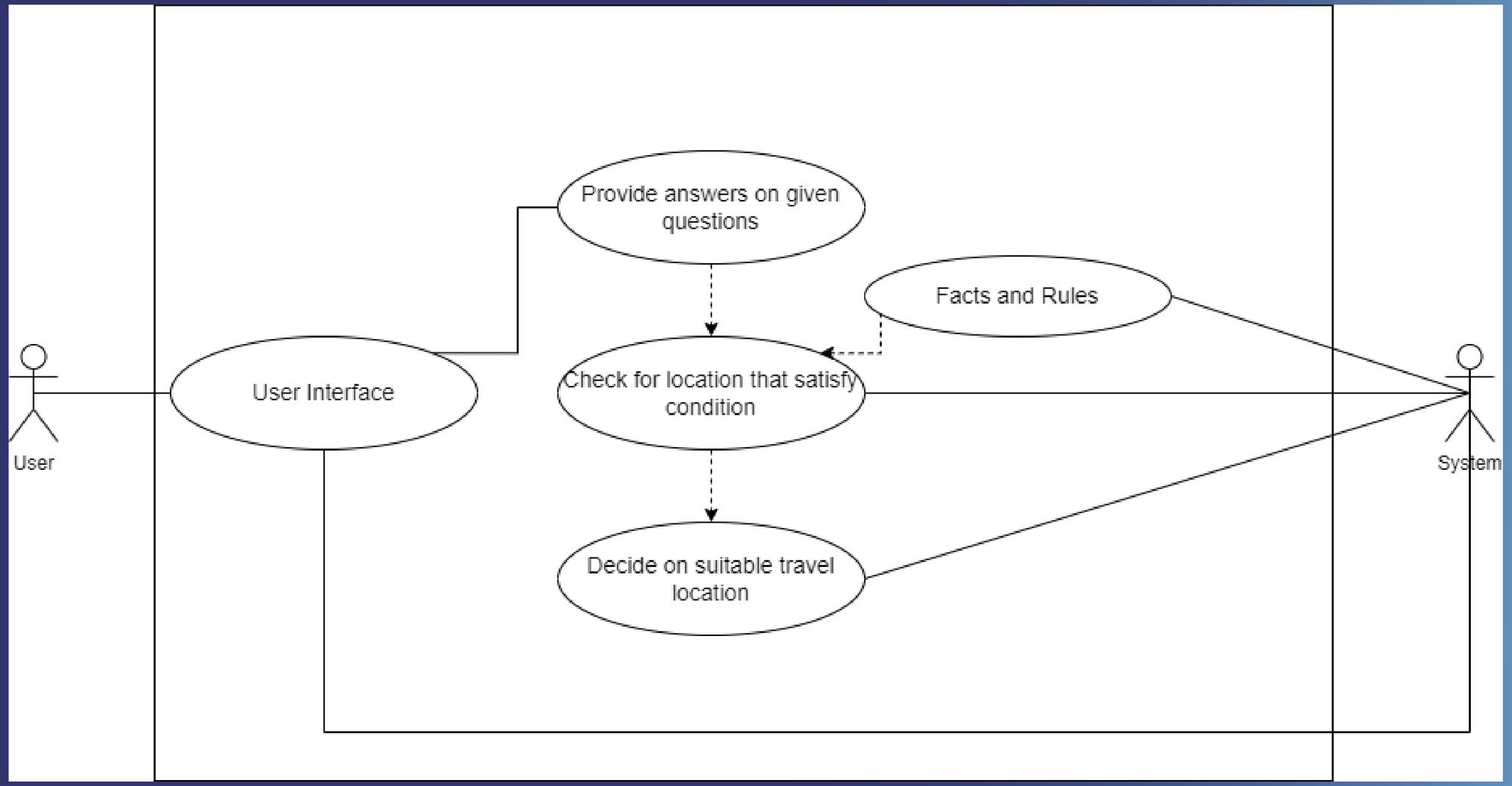
User interface is important to meet user expectations and support effective functionality. A well-executed user interface facilitates effective interaction between the user and the program, app or machine through contrasting visuals, clean design and responsiveness.

TENTATIVE PROPOSED APPROACH

Approach to statement 1 and 2:
To come up with a user friendly and easy to handle system, we provide simple questions the user can answer to narrow down our fact search.

By providing a set of questions it will be easier for both user and the system to decide on what aspects to focus on.

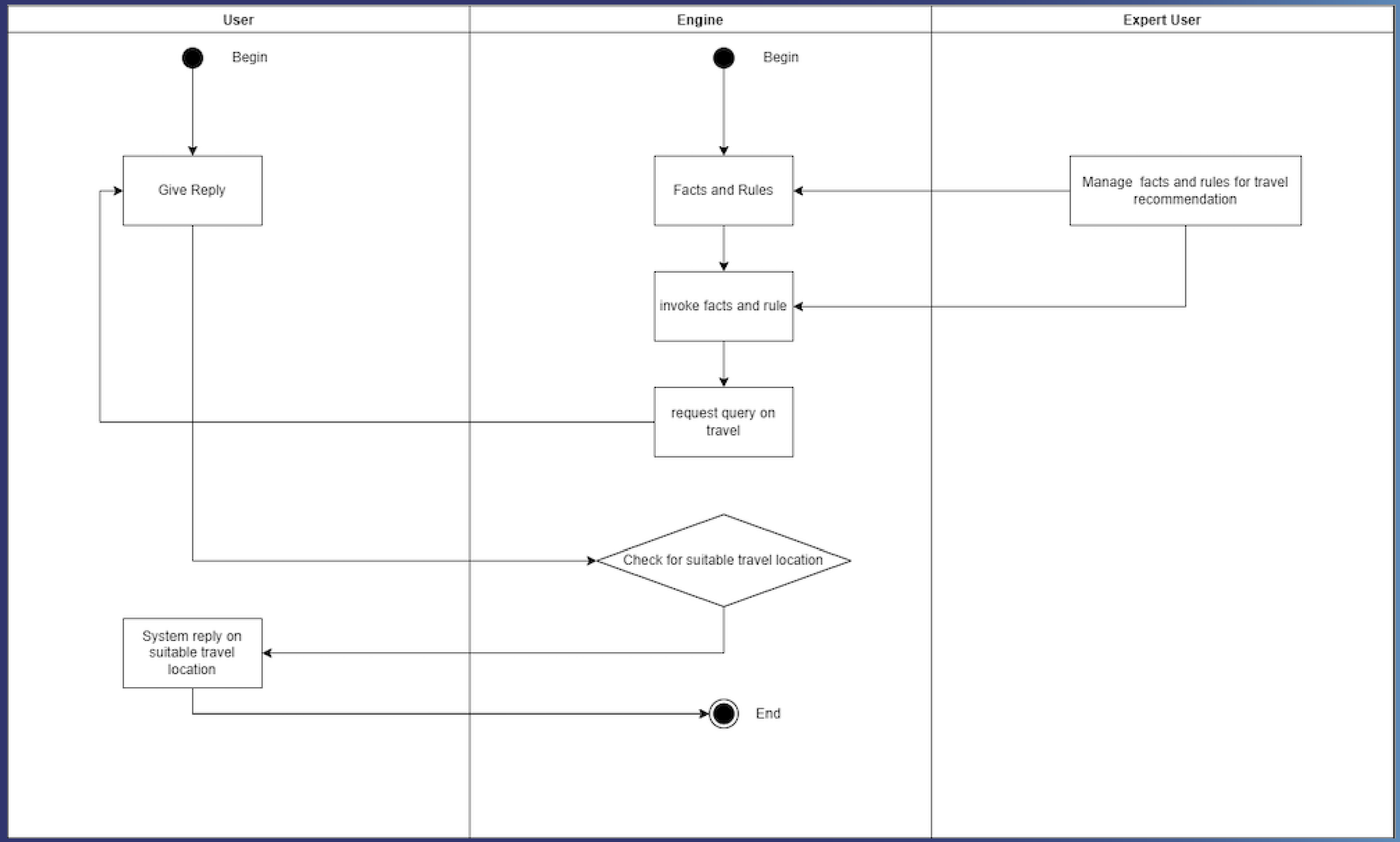
USE CASE DIAGRAM



After getting the user input the system will then trace through the fact list to find a suitable travel location for the user. We narrowed down to a large dataset which contains the attributes of:

- Place
- Transport type
- Place type
- Food type
- Weather
- Budget
- Duration

ACTIVITY DIAGRAM



Approach for statement 3

This problem can be easily approached by the application of Java GUI.

By the use of a Java GUI framework we can create a user interface that could take needed inputs and only show the front end to the user instead of all the clutter in a IDE like the fact list and instance browser.

Our Model

Our model is a rule based system which follow the reasoning method of forward chaining to arrive to conclusion.
We have defined a set of rules which are used by the system to arrive to said conclusion and also has defined a function to input additional rules if needed.

EXPERIMENTAL DATASET:-

Facts.clp file contains all the data of favorable travel conditions for each place based on user preferences which is taken as the facts list for the expert system.
The dataset was available open source without attribution and we cross checked the validity of the given dataset by using sources like wikipedia.org and makemytrip.com.

name	Goa
transport	(Air Train Road Sea)
place_type	(Beach)
food	(Seafood Thai Indian Other)
weather	Moderate
budget	(under20k 20k-50k)
duration	(3-5days over5days)

name	Allahabad
transport	(Air Train Road)
place_type	(Religious)
food	(Indian Continential Other)
weather	Hot
budget	(under20k)
duration	(3-5days)

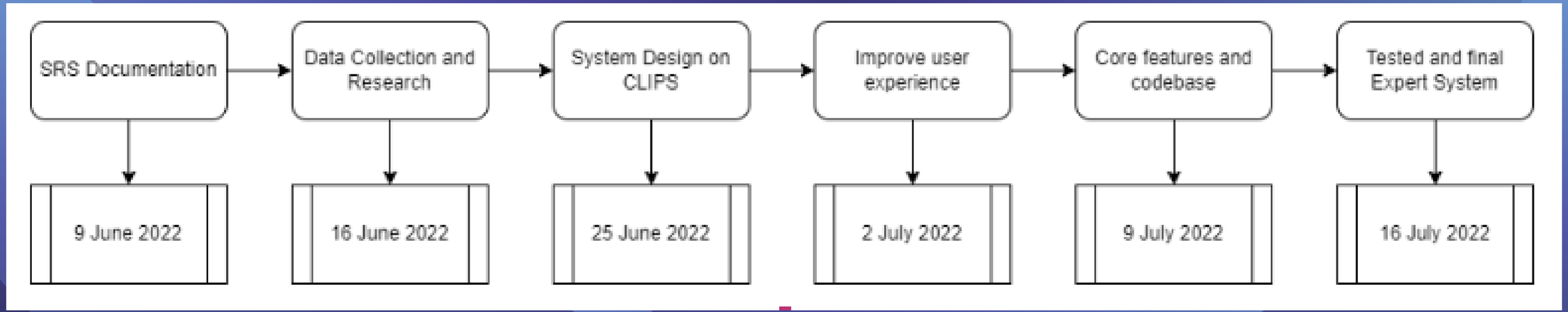
name	Andaman
transport	(Air Sea)
place_type	(Beach)
food	(Seafood Thai Continential Indian Other)
weather	Moderate
budget	(under20k 20k-50k)
duration	(under3days 3-5days over5days)

PROPOSED LANGUAGES/TOOLS

The proposed languages and tools that would be used in this project are

- CLIPS 6.3 IDE
- CLIPS JNI
- Java se platform

ACTIVITY TIME CHART



REFERENCES

1. ”Tourism expert system with clips using PFC” - Hamed Khakzad, Hossein Shirazi - Department of Computer Engineering Malek Ashtar University of Tehran, Iran.

2. Tourist Attraction System- Sciencedirect.com

3. Leiper’s Tourism System: A simple explanation

Thank-You !