

# Applied Artificial Intelligence

## CS-514

### Project 1 – Vacation Planning Assistant

Sherlock

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## Abstract:

This application, Vacation Planning Assistant is an expert system to help the user decide their next road trip. One could imagine this assistant to be helpful in a situation of decision fatigue where one could just describe the logistics and other constraints to the system while letting the system suggest a location for you.

The system takes parameters such as number of day, the kind of experience the user is looking for and the budget as input to predict a suitable place after analyzing the places near Chicago known to it.

## Features:

The system takes the following attributes as input.

- The system asks the user about the accommodation preference of the user. This helps the system in predicting whether the plan would be feasible within the user's budget. Again, the user is expected to choose from one of the given options – Airbnb vs a Star rated Hotel. The underlying assumption here is that Airbnb is going to be cheaper by a significant amount when compared to star hotels.
- The system requires the user to enter the number of the days the user has at his/her disposal. The reason this is being asked from the user is to suggest a place for the user which is viable within the number of days mentioned.
- A ballpark figure of the budget is then requested by the system. This is a very important criteria trip is useful in identifying the location that is feasible for the user's requirement. The user can choose one of the ranges suggested by the system.
- The number of people planning to go on the vacation. This variable is important in deciding the total budget of the trip which in turn is vital in recommending a location to the user. The user is expected to enter a whole number greater than 1 in response to this question.
- The most important criteria to determine the spot is the kind of experience the user has in their mind. Some are fond of the woods and some like the museums. By letting the user choose one among the 3 mentioned categories the system tries to eliminate so many other options that the user might not be interested in.

- Finally, the attribute which decides on the availability of car is again a key feature in tying the budget and the location together. It is based on the fact that if a person owns a car, the expense is limited to just fueling and miscellaneous stuff. On the other hand, if the user is planning to rent a car, there's going to be a lot of additional cost – insurance, rent of the car etc. which consumes a major part of the expense.

## Variables & Rules:

Experience:

A- Adventurous trip

B- Site Seeing or touring.

C- Scenery

Car:

Yes

No

Accommodation:

A -Airbnb

B - Hotel

Budget:

A – Less than \$200.

B - \$200 – \$500.

C –There's no upper bound.

No. of people.

No. of days.

Rule Name	Description
Rule 1	Budget is A. Looking for A experience. Has 2 days of time.
Rule 2	Budget is A. Looking for B experience. Has 2 days of time.
Rule 3	Budget is A. Looking for C experience Has 2 days of time.
Rule 4	Budget is B. Looking for A experience Has 2 days of time.
Rule 5	Budget is B. Looking for B experience. Has 2 days of time
Rule 6	Budget is B. Looking for C experience Has 2 days of time
Rule 7	Budget is C. Looking for A experience Has 2 days of time
Rule 8	Budget is C. Looking for B experience Has 2 days of time
Rule 9	Budget is C. Looking for C experience Has 2 days of time
Rule 10	Budget is A. Looking for A experience Has 3-5 days of time
Rule 11	Budget is A. Looking for B experience Has 3-5 days of time
Rule 12	Budget is A. Looking for C experience Has 3-5 days of time
Rule 13	Budget is B. Looking for A experience Has 3-5 days of time
Rule 14	Budget is B. Looking for B experience Has 3-5 days of time
Rule 15	Budget is B. Looking for C experience Has 3-5 days of time
Rule 16	Budget is C. Looking for A experience Has 3-5 days of time
Rule 17	Budget is C. Looking for B experience Has 3-5 days of time
Rule 18	Budget is C. Looking for C experience Has 3-5 days of time
Rule 19	Budget is A. Looking for A experience Has more than 5 days of time
Rule 20	Budget is A. Looking for B experience Has more than 5 days of time

Rule 21	Budget is A. Looking for C experience Has more than 5 days of time
Rule 22	Budget is B. Looking for A experience Has more than 5 days of time
Rule 23	Budget is B. Looking for B experience Has more than 5 days of time
Rule 24	Budget is B. Looking for C experience Has more than 5 days of time
Rule 25	Budget is C. Looking for A experience Has more than 5 days of time
Rule 26	Budget is C. Looking for B experience Has more than 5 days of time
Rule 27	Budget is C. Looking for C experience Has more than 5 days of time
Rule 28	Owens a car and Prefers option A for accommodation.
Rule 29	Owens a car and Prefers option B for accommodation.
Rule 30	Doesn't own a car and Prefers option A for accommodation.
Rule 31	Doesn't own a car and Prefers option B for accommodation and budget is either A.
Rule 32	Doesn't own a car and Prefers option B for accommodation and budget is either B or C.
Rule 33	Number of days is one
Rule 34	Number of days is zero
Rule 35	Number of days is greater than 10 and budget is C.
Rule 36	Number of days is greater than 5 and budget is A

## User Manual:

- Copy the .clp file into the bin folder of the jess directory.
- Open jess and execute the .clp file using (batch v.clp)
- This should start the program.
- The program repeats a question to the user when there is a type mismatch or a range mismatch in the value entered by the user. So, the program prompts the attribute which doesn't match with the required attributes.

## Scope and Assumption:

- The current location is assumed to be Chicago.
- Travel by owned car and stay at Airbnb is assumed to be cheaper.
- Only road trips are considered for now.

- The number of days only is required for now, but whether it is a weekend and how the prices vary during weekends is not considered.
- Toll charges are not brought into picture.
- The places suggested is not unique. Same place could be described for different rules if they fit in.

## Going Further

- The miles of travel involved could be calculated.
- Include other modes of transport like flight or train.
- Account climatic variation before suggesting location.
- Relate number of people to budget by involving factors such as car size, family, kids etc.

## Test Cases:

Name: Alice

Accommodation: Yes

Budget: Range B

Own Car: No

Experience: Option C

Days: 5

People :2

Output -> Galena, Illinois

Name: Bob

Accommodation: No

Budget: Range A

Own Car: Yes

Experience: Option C

Days: 2

People :2

Output -> Crystal lake, Evanston

Name: Charlie

Accommodation: Yes

Budget: Range B

Own Car: No

Experience: Option C

Days: 1

People :2

Output -> somewhere in Chicago

# Samples:

```
C:\WINDOWS\system32\cmd.exe
Jess, the Rule Engine for the Java Platform
Copyright (C) 2008 Sandia Corporation
Jess Version 7.1p2 11/5/2008

This copy of Jess will expire in 12 day(s).
Jess> (batch vacationplanner.clp)

Hello there! :) What's your name?
Anna

=====

Hello Anna! I'm your Vacation Planning Assistant
Answer these questions and I will try to suggest you a spot for your vacation. Let's get started!

=====

Ofcourse, vacation is not just about travel. Where would you prefer to stay? [Type in A|B]
A. AirBNB or a motel works out for me.
B. Fancy star hotel.
A

Let's talk money. What's your budget? [Type in A|B|C]
A. Less than $200
B. I'm okay with $200 - $500
C. I'm rich.
A

Are you driving your own car? [Type in Yes|No]
No

What kind of experience are you looking forward to? [Type in A|B|C]
A. Adventure
B. Site Seeing & historical stuff
C. Some time with nature
A

So, How many people? [Type in a number greater than 1]
2

How many days are you planning? [Type in a number]
4

The place you should consider is
Elkhart Lake, Indiana!5
Jess>
```

```
Hello there! :) What's your name?
Mark

=====

Hello Mark! I'm your Vacation Planning Assistant
Answer these questions and I will try to suggest you a spot for your vacation. Let's get started!

=====

Ofcourse, vacation is not just about travel. Where would you prefer to stay? [Type in A|B]
A. AirBNB or a motel works out for me.
B. Fancy star hotel.
A

Let's talk money. What's your budget? [Type in A|B|C]
A. Less than $200
B. I'm okay with $200 - $500
C. I'm rich.
1

Let's talk money. What's your budget? [Type in A|B|C]
A. Less than $200
B. I'm okay with $200 - $500
C. I'm rich.
A

Are you driving your own car? [Type in Yes|No]
Yes

What kind of experience are you looking forward to? [Type in A|B|C]
A. Adventure
B. Site Seeing & historical stuff
C. Some time with nature
A

So, How many people? [Type in a number greater than 1]
3

How many days are you planning? [Type in a number]
2

The place you should consider is
Indiana Dunes, Indiana. 15
Jess>
```



```
Jess> (batch vacationplanner.clp)
```

```
Hello there! :) What's your name?  
Alice
```

```
=====
```

```
Hello Alice! I'm your Vacation Planning Assistant  
Answer these questions and I will try to suggest you a spot for your vacation. Let's get started!
```

```
=====
```

```
Ofcourse, vacation is not just about travel. Where would you prefer to stay? [Type in A|B]
```

```
A. AirBNB or a motel works out for me.
```

```
B. Fancy star hotel.
```

```
A
```

```
Let's talk money. What's your budget? [Type in A|B|C]
```

```
A. Less than $200
```

```
B. I'm okay with $200 - $500
```

```
C. I'm rich.
```

```
B
```

```
Are you driving your own car? [Type in Yes|No]
```

```
No
```

```
What kind of experience are you looking forward to? [Type in A|B|C]
```

```
A. Adventure
```

```
B. Site Seeing & historical stuff
```

```
C. Some time with nature
```

```
C
```

```
So, How many people? [Type in a number greater than 1]
```

```
2
```

```
How many days are you planning? [Type in a number]
```

```
3
```

```
The place you should consider is
```

```
Galena, Illinois15
```

```
Jess>
```

