BAHIR DAR UNIVERSITY

INSTITUTE OF TECHNOLOGY

Computer Science and Engineering

Course: Artificial Intelligence (AI)

Requirement Specification Document on Tour and Travel Guide Expert System

Group Members Bekele Haile 069/2000

Dawit Abrha 103/2000

Dawit Anegagrie105/2000

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# Introduction

## Purpose

## The purpose of this software requirements specification (SRS) is to establish the major functional and non-functional requirements which are necessary to develop the Tour and Travel guidance expert system.

## Document Conventions

While writing this software requirement documentation, bold face and with 14 font size is used for the general topics of the document. The description for each general topic will be written using a standard font which is a Calibri theme font, with font size of 12 and 1.5 line spacing.

## Scope

The scope contains the coverage areas or portions that are planned to be covered or problems planned to solve using the expert system and the scope of the travel guide expert system are listed below.

* The system should print out a list of all available sample cities list in the knowledge base.
* A city will be defined with the Name, distance, Region, Description, travel Cost, Season, Contact information, Travel agency, Path, tour type, hotels and reservations and tour place categories.
* A menu will be used to choose different operations like to list cities with special properties.
* The system will use the capital city of the country which is Addis Ababa as a reference point for the tourists who are willing in having tour.
* The user will able to search the information such as season, cost, city, tour place, hotels and reservations, explanations about the tour places, distance, contact information, tour type, travel agencies and path of cities that will be passed through while going to destination.

## Product Perspective

The tour and travel guidance expert system is a system that will help tourists in giving enough and correct or reliable information to enable them decide where, when, how (including the transportation mechanism, the travel agency , the qualities of the services), why (providing reasons according to their requests it may consider distance to destination, cost, tour type which is the main interest or favorite of the tourist )

## Project Limitations

**Cost**: a tour or travel cost may fluctuate based on different factors such as the oil price and other economic factors directly or indirectly. This may cause a problem on getting reliable and correct information for the users.

**Weather condition**: some unexpected weather condition is another limitation which may cause cancellation of tours and travels which may bring the conflict on the tourist’s time and financial schedule.

# Existing System

Our country is in a deep problem of advertisement there is no well defined and organized existing system on tour and travel guidance. The tourists are in a problem of information scarcity there is no information provider for the tourists.

The tourists are only getting some information from some web sites available on the internet, although these web sites does not provide full information for the tourists and some tourists get information by asking and hire someone to do the guidance system which is unadvisable.

The existing system main problems are:

* Highly expensiveness due to many expenses
* Unscheduled
* There is no enough information provided for the tourist
* Tourists are cannot make financial arrangements easily
* Tourists are not able to make easy decisions on where to go

# Requirements

## Functional Requirement

1. The system shall accept user’s or tourist’s requests

The system shall accept the requests from the user the requests may be city name, description, season travel cost, tour site (place), hotel and reservations, distance, contact information, tour type, travel agency, path and travel agent type (governmental or non-governmental)

1. The system shall store the data input
2. The system shall display the nearest tour site as the user’s requests
3. The system shall display list of cities available in the system using the specifications
4. The system shall display the comfortable season for each city’s tour site
5. The system shall display the contact information for each city and the tour sites in that city
6. The user should be able to search the tour site with the least cost

* When the primary goal of the tourist is to have a cheap tour

1. The system shall able to display the sites available with different types of tour type

* The type may be cultural heritages, museums, holiday celebrations, traditional heritages and customs, natural resources, natural landscapes,

1. The city shall display explanations and information about the city and the tour sites available in that city
2. The system shall display the full city’s information using the categories of the cities
3. The system shall display the travel agencies available for each city and tour sites
4. The system shall display the nearby hotels and reservations to a tour site in a city

## Non – Functional Requirement

## Workability

The system should be Suitable for the variety of users. It should be accurate in performing its functions. Moreover, and it should be complete i.e. it should be fully functional in terms of providing all the functions expected it to perform.

## Reliability

The system should be available all hours of a day and 7 days a week.

The system should be reliable and matured enough in giving its service. It should have a fault tolerance mechanism in which it can recover faster from problems that may occur. The system should support backup in case the original was accidentally damaged or erased.

## Usability

The system should be understandable by the variety of its users from naïve users to amateurs and IT professionals. The interface should be easy to use and be easy to learn, operate and it should provide alternatives to different tasks.

## Efficiency

The system should be efficient and the response time should be minimal. It should be capable of running on minimum hardware requirements and with the almost all dominant operating systems.

## Maintainability

The System should be easily maintainable in case of problems, changeable if the need of incorporating new components arises from either the client’s side or technological changes.

## Portability

The system should be portable in running on different platforms, adaptable with other systems, installable on different machines architectures, and replaceable if the need arises.

## Error Handling

The system should handle exceptions and extreme conditions and behave accordingly. It should notify the users about the type and location of exception and appropriate action to be taken.

## Availability

The system should be available freely and easily from different organizations or individuals to provide simple and enough information for the tourists.

# Actors list and definition

Travel agency: is a governmental or non-governmental organization involved in travel and tour business

Tourist: a person who is willing to have a tour around a historic, holiday celebrations etc.( a person who is the main reason for the expert system development)

Hotel and reservation: is a governmental or non-governmental firm which supplies different services such as food, drink, tour, reservation and make some booking for users.

## Use case Diagram

The use case diagram shown below shows how the actors of the system and the use cases are connected to each other based on the function they provide to the user.

Figure 1: use case diagram

# Use case Description

These are the main use cases that the system will use to develop the expert system are Search for Information, Provides Hotel and Reservation Arrangement, Get Hotel and Reservation Arrangement, Provides Travel Service and Get Services. The description of this use cases are shown below.

|  |  |  |
| --- | --- | --- |
| Use case Id: | **BUC-001** | |
| Use Case Name: | Search for Information | |
| Description | In this use case users of the tour and travel guidance expert system will search any kind of information he/she need. | |
| Priority | High | |
| Actors: | Primary Actors:   * Tourist * Travel Agency | |
| Preconditions: | The travel agency should be legal. | |
| Basic course of action | User action   * The users login into the system. * The users search the information he/she need. | System response   * The system displays the information, if it is available. * If not, display no message. |
| Triggers: | * Whenever the users want to search. | |
| Flow of Events: | 1. Tourists login to the system. 2. Tourists search what they want. 3. Tourists get what they want. | |
| Post condition: | The Tourists gets the information what they want. | |
| Alternate Flow: | None | |
| Exceptions: | None | |
| Information Requirements: | * Region * Reservation * Cost * Specific property of that region * Season * Contact information * General specifications | |
| Assumptions: | All information seekers are legal. | |
| Notes and Issues: | When we are saying users it includes tourist, visitors or any traveller. | |
| Activity diagram |  | |

Table1: Search for Information Use case Model

|  |  |  |
| --- | --- | --- |
| Use case Id: | **BUC-02** | |
| Use Case Name: | Get services | |
| Description | In this use case tourist will get the information for what kind of services that he/she gets. | |
| Priority | High | |
| Actors: | Primary Actors:   * Tourist | |
| Preconditions: | Travel agencies should be legal. | |
| Basic course of action | **User action**   * The user login to the system. * Then users can ask the information that he/she need. | **System response**   * The system refers its knowledge database and if the information related to services that he/she wants, available displays that information to the users. * If not it say this information is not available. |
| Triggers: | * Whenever the tourists or the visitors want services. | |
| Flow of Events: | 1. Tourists, Travel guidance login to the system. 2. Tourists or visitors ask what they want. 3. Tourists or visitors get the information that he/she need, if the services information is available. 4. If, not the system display no message. | |
| Post condition: | The travel agency or the system should provide the required information related to any services what tourist or visitors want. | |
| Alternate Flow: | None | |
| Exceptions: | There is no exception to give information other that the legal body’s. | |
| Information Requirements: | * Reservation * Region * Distance(Km) * Trip type(by plane, by car) * Cost * Path * Specific property for that region he/she want to go * Season | |
| Assumptions: | All information providers are legal. | |
| Notes and Issues: | None | |
| Activity Diagram: |  | |

Table2: Give Information Use case Model

|  |  |  |
| --- | --- | --- |
| Use case Id: | **BUC-03** | |
| Use Case Name: | Provide Travel Services | |
| Description | In this use case the travel agency, should provide travel service. | |
| Priority | High | |
| Actors: | Primary Actors:   * Travel agency | |
| Preconditions: | Travel agencies should be legal. | |
| Basic course of action | **User action**   * The users login to the system. * The users give information where he/she want to go. * Then users can ask the services he/she wants. | **System response**   * The system gives information where to get those services, if those services are available in the system knowledge base. * If no, display no message. |
| Triggers: | * Whenever the tourists available. | |
| Flow of Events: | 1. Tourists, give information where he/she want to travel.  2. Tourists or visitors can get the service what they want. | |
| Post condition: | Tourists or visitors should get the services he/she needs. | |
| Alternate Flow: | None | |
| Exceptions: | No exception provides travel service, as long as the tourist agrees on the cost, asked by the travel agency. | |
| Information Requirements: | * Reservation * Trip type(by plane, by car) * Cost * Season | |
| Assumptions: | All service providers are legal. | |
| Notes and Issues: | None | |
| Activity Diagram: |  | |

Table 3: Providing Travel Service Use case Model

|  |  |  |
| --- | --- | --- |
| Use case Id: | **BUC-04** | |
| Use Case Name: | Reservation arrangement | |
| Description | In this use case the tourist or the travel agency both can make reservation arrangement. | |
| Priority | High | |
| Actors: | Primary Actors:   * Travel agency * Tourist | |
| Preconditions: | Travel agencies should be legal. | |
| Basic course of action | **User action**   * The users login to the system. * Then the tourists give information the region where to travel. | **System response**   * The system will display the available reservation hotel place. * If no, display no message. |
| Triggers: | * Whenever the tourists should be available. | |
| Flow of Events: | 1. Tourists, give information the region, where he/she want to travel.  2. Tourists or visitors can get or can make the reservation. | |
| Post condition: | Tourists or visitors should get the services he/she needs. | |
| Alternate Flow: | None | |
| Exceptions: | No exception Reservation arrangement, as long as the tourist agrees on the cost, requirement. | |
| Information Requirements: | * Region * Cost * Season | |
| Assumptions: | All service providers are legal. | |
| Notes and Issues: | None | |
| Activity Diagram: |  | |

Table 4: Reservation arrangement Use case Model