 **King Saud University**

**College of Computer and Information Sciences**

**Department of Information Systems**

**Course: IS 240 – IS Analysis and Design**

**1st. Term, Academic Year 2014-2015**

**Course Project**

Spectrum Zoo “SZ” is a development project carried by “Century 21” a major project developer. The current situation of Spectrum Zoo “SZ” as described by the Zoo Manager, Mr. Ahmed Sultan, is that it is a closed Zoo, with limited variety of animals, mostly local timid animals. The way they look for “SZ” after development is that it becomes an open Zoo, with much variety of animals- both timid and wild- exported from various countries thus representing various environmental and geographic locations. To achieve such purpose, Century 21, was chosen to do that major step. Mr. Mohamed Otaiby, an analyst with Century 21, mentioned that the information gathered after many JAD sessions led to understanding the point of view of the sponsors of the project, which could be summarized as follows: We are looking forward that the inhabitants of the city, as well as tourists should enjoy an open Zoo with lots of entertainment facilities, as well.

Mr. Rashed Qahtany, the vice manager of “SZ” describes the current situation regarding visiting “SZ” by saying that currently customers who wish to visit “SZ” should pay for tickets at a booth at the entrance of the zoo, and in rare cases could call by phone by dictating a credit card number to the operator at the booth, and receive the tickets upon arrival at the zoo. The new situation they look at, is to change the method of reserving tickets, by having a web site for the zoo, and allowing customers to pay for tickets directly through the web; i.e “ an E-reservation”, he said. Visitors in the modified system, would browse the web site, look at the schedule of visiting the zoo, select a day to visit the zoo, enter a membership# or a credit card# securely to the system that is furnished with security protocols up to standards, that guarantee privacy of data of visitors when a transaction is being made. In case of tickets refund, the new system permits instantaneous electronic refund in less than a minute upon visitors’ request.

A visitor in an open zoo is apt to be subjected to traffic accidents or wild animals attacks. The new system allows monitoring vast areas of the zoo by cameras and copters operated by the zoo patrols 24 hours by seven. In case of an emergency, whether an accident or an attack, visitors can simply call a toll free 800 number that connects him/her directly with mobile ambulances (vehicles and copters) stationed in pre-assigned spots at “SZ”. Visitors can track the history of accidents and browse the web for statistics regarding any particular accident. Accident Reports can be accessed and retrieved through the web as well.

Visitors could even camp at the new site and stay for several days, and enjoy many entertainment facilities at “SZ”. “Swimming Pools, skating Halls and Tennis courts are examples of such facilities, to mention a few”, Mr. Rashed Qahtany says. There are many wireless network receptors that cover the vast areas of “SZ”, so that visitors could simply plug in there mobiles or palm tops and communicate directly with the Command Center of the zoo. The Command Center “CC” co-ordinates all sorts of communication between visitors and zoo patrols and vice-versa. Any notices are broadcasted all over the zoo, through a wide area network that covers an area of 300square kilometers, which is the total zoo area.

In case of limited fire emergencies, the “CC” simply alerts the Fire Dept. of the zoo, to dispatch modern “Fire Fighter copters” to the required spot in less than few minutes from the time of receiving the alert. In case of massive fire emergencies, “SZ” has preparations for even soliciting help from the royal Air Force Chief directly. In case of limited fire emergencies, announcements are broadcasted locally in the area through the “CC” every five minutes till the fire is extinguished. In case of massive fire emergencies, announcements are broadcasted Zoo wide through the “CC” every half an hour till the fire is extinguished. If the fire occurs on any scale on a week end, the boys’ scouts in the area are notified, to help extinguish the fires. Otherwise they are not.

There are few malls in “SZ”, an inner railroad station to connect certain spots together (residential and Commercial), a vast man-made lake, probably the biggest in the Gulf area. The National TV could easily broadcast events from any spot in “SZ”, thanks to the complete integrated multi-media facilities provided by the new project.

A museum is established in “SZ’ as well. Such museum includes rare species of birds, fishes and animals of all types. The slogan of “SZ” is “You get what you wish and You enjoy what you get”.

1. **Functional and Non-Functional Requirements**
2. **What are the main functional requirements for Spectrum Zoo (SZ)? (Identify three functional requirements).**
3. **Identify three non-functional requirements for Spectrum Zoo (SZ)?**
4. **Use Cases**
5. **Using the event decomposition technique for each event you identify in the description here, name the event, state the type of event, and name the resulting use case.**
6. **Specify the Actors and Use-cases of such system and draw a simple USE-case diagram. Provide a template for describing each USE-case showing the actors, related use cases, pre-and post- conditions as well as exceptions.**
7. **Domain Modeling**
   * 1. **Use the “Noun Technique” to identify the Domain Classes in this narration.**
     2. **Think about potential domain classes that might be involved. Draw a simple Domain Model Class Diagram for (SZ) showing classes with attributes and multiplicity.**
8. **Activity Diagrams , System Sequence Diagrams and State Diagrams**
9. **Provide an Activity diagram for each USE-case in part 2 above.**
10. **Draw a Sequence diagram for the USE-Case that shows how a customer scheduling a visit for the zoo and pays for a ticket by making an E-reservation through the web.**
11. **Draw a State Diagram that shows how the Command Center (CC) interacts with (SZ) to dispatch** “Fire Fighter copters”**.**
12. **Designing Interfaces**

**Use Visual basic or any other Visual tool to create a main Screen for (SZ) web and at least ten different screens that show how customers use the system to make E-reservations for the zoo, how they get instant refund for tickets-if needed-. Use your imagination to show screens designed for the Command Center (CC) that reflects how the Command Center “CC” co-ordinates all sorts of communication between visitors and zoo patrols and vice-versa, and how visitors track the history of accidents and browse the web for statistics regarding any particular accident as well as arranging their annual gatherings.**

**Due Dates**

**Phase 1 (Task 1 and Task 2):** Wednesday, 5th. November 2014.

**Phase 2 (Task 3 and Task 4):** Wednesday, 19th. November 2014.

**Phase 3 (All Tasks):** Wednesday, 26th. November 2014.

**Assessment**

|  |  |
| --- | --- |
| **Question** | **Total** |
| 1 | **10%** (A. 5%, B 5%) |
| 2 | **10%** (A. 5%, B 5%) |
| 3 | **20%** (A. 10%, B 10%) |
| 4 | **30%** (A. 10%, B. 10%, C. 10%) |
| 5 | **30%** |

**General Rules**

* The project must be submitted in three phases. Please submit the requirements of each phase to Mr. Ashraf Youssef.
* This is a group assignment. Each group consists of two students.
* If your submission is late, then a late penalty of 10% per day applies.
* There will be a discussion session with each group at the end of the semester.
* If another group uses your group's work, both your group and their group will get ZERO mark.