

## Assignment – Jungle Video DVD Rental System

### Instructions and Guidelines

This is an assignment that is to be handed in by **23rd July 2010(Friday) 5:00PM**.

Students are required to form groups of **3-4** students (each group must appoint a team leader) to complete this assignment.

**The team leaders must submit the group members' names and indicate the functions to be done by each team member to the lecturer using the Task Allocation form.**

All programs must be coded in VB.NET and JavaScript. The development platform will be on Visual Studio.NET only.

The teams are required to submit *softcopy of the assignment*. Provide the Class, Admission Numbers, Names and Contact Numbers on the CD softcopy. All members must contribute in the submitted work, as marks will be awarded based on their contribution.

The interview will be conducted on the **15th** week during the practical sessions from **26th July 2010** to **30th July 2010**. Your lecturer or tutor may also arrange the interview with you and your group beyond the practical sessions if he/she is not able to complete the interview during the practical sessions. All group members must be present for all practical sessions and pre-arranged lessons. Students are expected to explain the program logic and make modification during the interview. Students who are absent from the interview will be awarded **zero mark** for the assignment. Evidences of web application designs (draft papers, drawing etc), bugs detected during development and testing should be produced during the project interview.

**No marks will be awarded**, if the work is copied or you have allowed others to copy your work.

**10%** of the total marks will be deducted for each day of late submission. It is the students' responsibility to save and back up the development work frequently. No excuses shall be entertained for loss or corruption of data.

## **1. Business Background**

A group of entrepreneurs want to setup a DVD movie rental company, Jungle Video. This company allows customers in Singapore to rent DVD movie titles online. The Jungle Video shall post the ordered DVDs to the customer. The customer can watch them at his leisure, and when he has finished, he can simply post the DVDs back in the prepaid return envelope. When Jungle Video receives it, it mails him the next movie in his personal movie queue list. It's that simple. As a member of Jungle Video, a customer can have up to 3 DVDs at one time, with no due dates. So there will always be a movie ready at his home for any family member to enjoy. The shipping is free to the customer.

Before beginning the business, the online system must be available to allow the customers in Singapore to register as member, browse DVD titles, update their personal details, manage their personal list of DVD titles etc. The system must have the necessary functionalities to allow administrators to perform administrative work.

## **2. Functional Requirements**

### **2.1 Authenticating & Authorizing Users (Administrator, Member)**

The Login web form is the default page of the system. The system supports 2 types of users. The user types are:

- i) Administrator
- ii) Member

The Login web form's server-side logic authenticates the user based on the user id and password which is stored in the database. After identifying the user type, the authenticated user is directed to their default main page. The administrator will be directed to the Administrator main page. The member will be directed to the Member main page.

To help the users in remembering their user id, the system will use their favorite email accounts as their user id. Before the user can submit the web form, the Login page must have the necessary client-side validation logic to ensure that:

- 1) The user enters a valid email format for the User Id textbox.
- 2) The user enters a string (which does not contain spaces only) for the Password textbox.

The system's server-side logic must not allow the users to bypass the login page. Some irresponsible users may attempt to directly access a web form in the system by typing the URL address in browser's URL location textbox. The system must have the server-side logic in all the web forms, to check whether a user has bypassed the Login page. If a user bypassed the Login page, it will immediately redirect the anonymous user back to the Login page.

Do not let the users to use web forms that are used by other user types. The system must have a good authorization logic. The authorization logic must disallow the authenticated user from accessing the web forms which are used by other user types. For example, a member cannot access the web forms which can only be used by administrator.

## 2.2 Member Registration (Anyone)

A customer must register as a member in Jungle Video first, before he can rent DVD titles. Several web forms are needed to complete the registration process. (Fig. A1, Fig. A2 and Fig. A3)

The 1<sup>st</sup> web form requires the customer to provide his email and password (Fig. A1). The system uses the email address as the customer's user id after he has become a member. The password must be between 4 to 12 characters. The password must not contain spaces.

The 2<sup>nd</sup> web form (Fig. A2) requires the customer to provide other information such as:

- i) Salutation                      Mr. or Ms.
- ii) Given name and family name
- iii) NRIC                              E.g. S1234567D. Note that the first character must be an S, followed by 7 digits and the last character is an alphabet.
- iv) Address
- v) Postal code                      E.g. 650992. The postal code must have 6 digits
- vi) Contact                              The contact can be either mobile number or home number. The 1<sup>st</sup> digit must be 8, 9 or 6 and followed by 7 digits.
- vii) An answer to a survey              Provide a quick answer for a simple survey question, "How did you hear about us?"

The 3<sup>rd</sup> web form (Fig. A3) will ask the customer for his master card credit card information. The credit card number must have 16 digits. The first 2 digits must be 51, 52, 53, 54 or 55.

After providing information in the web forms, the customer can view his entered information in the last web form (Fig. A4). The last web form displays all the previously entered information. The member can update his particulars and credit card information if he finds any incorrect entry. To confirm the registration process, he can click the Start Membership button. The Start Membership button will lead the member to the Login web form

## 2.3 Request Movie (Member)

After the member has login the system, he can browse movie titles by using a web form as described in Fig. B1. By default, the web form displays movie titles randomly when the member has login the system. The Fig. B1 displays all the movie titles which belong under the Action category because the member has clicked the Action category link. If the member is interested in a movie title, he can either click the title name to view the details of the title in another web form (Fig. B2). If the member wants to add the movie into the movie queue, he can click the Add button of the respective title. The system must not allow the member to add the movie title into the movie queue twice (Fig. B3). After successfully added a movie title into the queue, the member will see a confirmation message (Fig. B4).

The request movie function Fig. B1, must provide the member the following helpful functions:

- i) Category Table              The member can view a list of categories in the Category Table and click the respective links to view all the titles that are grouped under it.
- ii) Search Title                      The member can do a search by providing partial title name,

director name or actor name.

## **2.4 Movie Queue (Member)**

The member can use the Movie Queue (Fig. B5) to check the titles that he will receive once he returns any titles that he has previously loaned out. The member can use the interface in the Movie Queue web form to arrange the ordering of the titles. A maximum of 3 titles will be posted to the member. The member can mail back the titles in a prepaid envelop so that he can receive his next 3 titles that he has arranged in the Movie Queue web form. When titles are posted to the member, the administrator will update the system to reflect the status of the movie titles in the Movie Queue web form. The system will allow the member to add a maximum of 30 movie titles into the Movie Queue.

## **2.5 Member Account Info (Member)**

The member can update his membership details in the Account Info web form (Fig. B7). Besides updating his particulars, the member can also:

- i) **Cancel Membership** Note that, the system will not delete the record, but only mark the membership status as cancelled. Once the membership has been cancelled, the system must direct the member back to the login page. The membership cannot be cancelled until he has returned all the movie titles.
- ii) **Suspend Membership** The member can suspend the membership. This function is important because the member might have lost his credit card etc. The member can login the system in the future to activate his membership. Note that he will not be able to loan any titles when his membership is suspended. The membership can be suspended even if he has not returned his previously loaned movie titles.

## **2.6 DVD Title Management (Administrator)**

When an administrator has logon to the system, he will be directed to the Administrator main page. The administrator main page is also the DVD Title Management web form (Fig. C1). The web form has the following functionalities:

- i) For adding new title records, the administrator can click the Add Title button to use the Add Title web form (Fig. C2).
- ii) The administrator can click the Search button to provide search keywords to search for specific title records.
- iii) The administrator can click the Edit button to edit the respective record.
- iv) The administrator can click the Delete button to delete the selected record(s).

Note that, you must find out the necessary client-side and server-side validation for each web form in the system. For example:

- i) The client-side validation logic in this DVD Title Management web form must not let the administrator postback the Delete button's click event if no records are checked or selected.

- ii) If the web form does not have any records to display, it must display a meaningful message such as "No records found."
- iii) The system will not let the user to delete a DVD title record that is still on loan.

**Add DVD Title and Edit DVD Title**

The administrator uses the Add Title web form to add new DVD title records (Fig. C2). The web form must collect the following information:

- i) DVD Title
- ii) Title Description
- iii) Production Year (E.g. 2004)
- iv) Category (E.g. Family, Comedy)
- v) Duration (E.g. 90 minutes, 120 minutes)
- vi) Rating (E.g. PG, NC16, RA)
- vii) Actors (E.g. Jim Carey, Jacky Chan, Steven Chow)
- viii) Directors (E.g. John Woo, Steven Spielberg)
- ix) Studios (E.g. Universal Studio, 20th Century Fox)
- x) Title Image (A picture JPG file)

There are many server-side logic and client-side logic that you will need to find out. For example, the system must ensure that the administrator cannot save a duplicate title record. The client-side logic must ensure that the title's duration must be whole number, the production year must be valid and the DVD title should not contain spaces only etc.

The administrator can use the Edit Title web form to view and update an existing DVD title record. The Edit Title web form must display the correct DVD title record for the administrator to change. If the client-side logic detects that no changes were done, the web form will not save the record.

#### ***Include/Exclude Actors***

The administrator always needs to describe the actors that have acted in the movie. Within the Add Title and Edit Title web form, the administrator can click the Include Actor button to use the Include Actor to Title web form (Fig. C3). The administrator can also click the respective Exclude link to exclude the actor from the title.

#### ***Include/Exclude Directors***

The administrator needs to describe the directors that have directed in the movie. Within the Add Title and Edit Title web form, the administrator can click the Include Director button to use the Include Director to Title web form (Fig. C4). The administrator can also click the respective Exclude link to exclude the director from the title.

#### ***Include/Exclude Studios***

The administrator needs to describe the studio(s) that produced the movie. Within the Add Title and Edit Title web form, the administrator can click the Include Studio button to use the Include Studio to Title web form (Fig. C5). The administrator can also click the respective Exclude link to exclude the studio from the title.

## **2.7 Member Management (Administrator)**

The administrator can use the Member Management web form (Fig. C6) to manage the member records in the system. The Member Management web form must have the following interface for the administrator to:

- i) Click Search button to search for member records.
- ii) Click the Active Member or Suspended Member radio button to view members that are active or members that are suspended.
- iii) Click Suspend button to suspend the selected member records.
- ii) Click Activate button to activate the selected member records.
- iii) Click the Manage button to edit and manage the respective member record.

### ***Manage Member Record***

The Manage Member web form (Fig. C7) allows the administrator to edit the member user record, cancel the membership and suspend the membership. Note that, the administrator cannot edit or view the member's credit card number. Within the Manage Member web form, the administrator can suspend a member's membership. Such situation occurs when a member calls up to inform the company that he has lost of his credit card. The administrator can remove the suspension status by clicking the Activate Membership button. The membership can only be cancelled if there are no titles loaned out to the respective member.

Note that when a membership is cancelled, the respective member will not be able to logon to the system. When a membership is suspended, the member can still logon to the system. The system will not allow the suspended member to update Movie Queue at all.

The web form's server side logic must ensure that the member user id (which is in email format) are unique. The web form client-side logic must check for empty entries, invalid telephone number, NRIC etc.

## **2.8 Category Management (Administrator)**

The administrator can use the Category Management web form (Fig. C8) to manage the category records. Each title belongs to a category. Some titles are also categorized under more than 1 category. For example, The Mask movie is categorized as comedy and action movie. Shrek is a Family movie.

By using the Category Management web form, the administrator can do the following:

- i) He can navigate to the Add Category web form to add category
- ii) He can click the Edit button of a category record to update the respective category name and description
- iii) Click the Delete button to delete the selected category record.

The system must ensure that each category name is unique. Each category record must have a category name and description.

## **2.9 Studio Management (Administrator)**

The administrator can use the Studio Management web form (Fig. C9) to manage the studio records. Each title is produced by a studio. Some titles are also co-produced

by more than 1 studio. For example, The Mask movie is produced by the studio, Universal Studios. The Shrek movie is produced by the studio, DreamWorks Home Entertainment.

By using the Studio Management web form, the administrator can do the following:

- i) He can navigate to the Add Studio web form (Fig. C10) to add a new studio record.
- ii) He can click the Edit button of a studio record to update the respective studio name.
- iii) He can click the Delete button to delete the selected studio record.
- iv) He can click the Include or Exclude button to use the Include Title to Studio (Fig. C12) or Exclude Title from Studio web form (Fig. C11).

The Add Studio and Edit Studio web form must ensure that each studio name is unique.

After creating a new studio record, the administrator will want to select DVD movie titles and include them under this studio. The administrator will later want to exclude titles from this studio too. The administrator can use the Include Title to Studio (Fig. C12) and Exclude Title from Studio web form (Fig.A11) to achieve this objective.

#### **2.10 Actor Management** (Administrator)

The administrator can use the Actor Management web form (Fig. C13) to manage the actor records. Each title has one or more actors. For example, The Mask movie has Jim Carey and Peter Riegert acting in it.

By using the Actor Management web form, the administrator can do the following:

- i) He can navigate to the Add Actor web form to add an actor record.
- ii) He can click the Edit button of a actor record to update the respective actor name (Fig. C14).
- iii) He can click the Delete button to delete the selected actor record.
- iv) He can click the Include or Exclude button to use the Include Title to Actor (Fig. C15) or Exclude Title from Actor web form (Fig. C16).

The system must ensure that each actor name is unique.

After creating a new actor record, the administrator will want to select DVD movie titles and include them under this actor. The administrator will also want to exclude titles from this actor later. The administrator can use the Include Title To Actor and Exclude Title From Actor web form to achieve this objective.

#### **2.11 Director Management** (Administrator)

The administrator can use the Director Management web form (Fig. C17) to manage the director records. Each title has one or more directors. For example, The Mask movie is directed by Charles Russell.

By using the Director Management web form, the administrator can do the following:

- i) He can navigate to the Add Director web form to add director.
- ii) He can click the Edit button to update the respective director name.
- iii) He can click the Delete button to delete the selected director record.



When the administrator is editing or adding director records, the system must ensure that each director name is unique.

After creating a new director record, the administrator will want to select DVD movie titles and include them under this director. The administrator will also want to exclude titles from this director later. The administrator can use the Include Title to Director and Exclude Title from Director web form to achieve this objective.

#### **2.12 Movie Queue Management (Administrator)**

The administrator uses the Movie Queue Management web form (Fig. C18) to search and to list out the member's movie queue. When the company receives the prepaid envelop that contains the returned movie titles from the customer, the administrator will search by email address for the member who returned the titles. Then, the administrator clicks the Manage

Queue button to view and update the status of the member's Movie Queue by using the Manage Movie Queue web form (Fig. C19).

If the Movie Queue of the member is not empty (for example, there may be 10 titles listed in the queue), the company will post the first 3 movie titles that are listed in the queue. Then, the administrator will click the Posted button to update the status in the system.

Note that the administrator cannot click the Posted button if the member's membership is suspended or cancelled.

#### **2.13 Survey Answer Management (Administrator)**

Note that the member will need to provide an answer to a survey question during his membership registration process (Fig. B2). The administrator needs to use the Survey Answer Management web form to add, edit, delete and sequence the answers.

When the administrator deletes an answer record, the system must ensure that the Survey Summary Report (Fig. C23) is still accurate. When the administrator adds or edits an answer, the system must ensure that there are no duplicate answers.

#### **2.14 Report (Administrator)**

The system's reporting function is important to help the company's management in analyzing the online DVD rental business trend.

##### ***Title Performance Summary***

Fig. C21 describes 3 web forms. The 3 web forms work together for the administrator do the following:

- i) The 1<sup>st</sup> web form allows the administrator to view an overall category monthly performance, by specifying the start month and the end month (E.g. from May 2004 to August 2004).
- ii) By clicking the respective numbers, the system can show the contribution by each title for a particular month in the 2<sup>nd</sup> web form.
- iii) By clicking the title, the 3<sup>rd</sup> web form can show the monthly rental performance of the respective title from a start month to the end month (E.g. from May 2004 to August 2004).

### **Monthly Membership Summary**

Fig. C22 describes the Monthly Membership Summary Report web form that allows the administrator to view the changes in the membership signup per month.

### **Survey Summary**

Fig. C23 describes the Survey Summary report which shows the total member responses towards the survey question.

## **3. Database**

A sample database design has been prepared and uploaded in the ESP for your references. You can use the database design to develop the system. Note that the database design can be modified, to provide better web application features without compromising the existing functional requirements laid out in this assignment.

## **4. Assessment**

The assignment will be evaluated based on the following criteria:

- i) Ability to demonstrate the required functionalities accordingly to the specification.
- ii) Site Architecture and Site Navigation. **Important Note** The assignment specification does not describe how the site navigation should be designed. You must decide the most suitable navigation interface for your assignment.
- iii) Consistent and dynamic user-friendly interface using CSS and DHTML.
- iv) Appropriate web form validations using client side JavaScript and server side VB.NET. **Important Note** The assignment specification does not list out all the required server-side and client-side validation logic. You must find out the required logic to ensure the completeness of the system.
- v) User Friendliness
- vi) Program Design, Readability and Reusability
- vii) Innovation and Creativity
- viii) Question & Answers

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End

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