Text Description:-

**UC 1: New.** Using this use case the user enters the details of new reservoir or pond estimates. Each consists of a set of user interactive forms for selecting and entering different parameters. Finally leading to a detailed estimate report containing all necessary construction information.

**UC 1.1: Reservoir**

*Primary actor:* User

**Stakeholders and interests**

*User*: Wants a user-friendly environment and proper steps for reservoir estimating. Wants to generate a report of the calculated reservoir estimate.

*Pre-condition*: The homepage is displayed with ‘Reservoir’ option under ‘New’, for calculating reservoir estimate.

*Post-conditions*: The estimate is calculated with the user entered parameters and reservoir estimate report is generated.

**Main success scenario**

1. User clicks the ‘Reservoir’ option under ‘New’ in the homepage menu bar.
2. System opens the primary parameter details entry form for the Reservoir estimate.
3. User enters the parameter details asked in the forms and clicks “Continue” button.
4. System saves the parameter details.
5. System opens the forms for selecting the required schedule of rates.
6. User select the necessary schedule of rates and clicks “Continue” button.
7. System opens a form for entering the quantity details of the selected schedule of rates.
8. User enters the calculated quantity from the parameters into their respective schedule of rates and clicks “Continue” button.
9. System opens a form for entering the project details of the Reservoir estimate.
10. User enters the project details of the estimate and clicks “Save” button.
11. System prompts a message for successful data save operation.
12. User clicks “Generate report” button.
13. System opens the generated report for viewing with printing options.

**Extensions**

|  |  |  |
| --- | --- | --- |
| 3.a. | Invalid Reference number: | Handle invalid reference number. |
| 3.b. | Invalid parameter details: | Handle invalid parameter details. |
| 3.c. | Empty parameter field: | Handle empty parameter field error. |
| 3.d. | Incomplete form submission: | Handle incomplete form. |
| 4.a. | Parameter Save failure: | Handle failure to save details. |
| 6.a. | Incomplete form submission: | Handle incomplete form. |
| 8.a. | Incomplete form submission: | Handle incomplete form. |
| 8.b. | Invalid data in fields: | Handle invalid field data. |
| 10.a. | Incomplete form submission: | Handle incomplete form. |
| 10.b. | Invalid generate report request before saving data: | Handle invalid request. |

**Special requirement**

User should save the estimate details before generating estimate report.

**UC 1.2: Pond**

*Primary actor:* User

**Stakeholders and interests**

*User*: Wants a user-friendly environment and proper steps for pond estimating. Wants to generate a report of the calculated pond estimate.

*Pre-condition*: The homepage is displayed with ‘Pond’ option under ‘New’, for calculating the pond estimate.

*Post-conditions*: The estimate is calculated with the user entered parameters and pond estimate report is generated.

**Main success scenario**

1. User clicks the ‘Pond’ option under ‘New’ in the homepage menu bar.
2. System opens the primary parameter details entry form for the Pond estimate.
3. User enters the parameter details asked in the forms and clicks “Continue” button.
4. System saves the parameter details.
5. System opens the forms for selecting the required schedule of rates.
6. User select the necessary schedule of rates and clicks “Continue” button.
7. System opens a form for entering the quantity details of the selected schedule of rates.
8. User enters the calculated quantity from the parameters into their respective schedule of rates and clicks “Continue” button.
9. System opens a form for entering the project details of the Pond estimate.
10. User enters the project details of the Pond estimate and clicks “Save” button.
11. System prompts a message for successful data save operation.
12. User clicks “Generate report” button.
13. System opens the generated report for viewing with printing options.

**Extensions**

|  |  |  |
| --- | --- | --- |
| 3.a. | Invalid Reference number: | Handle invalid reference number. |
| 3.b. | Invalid parameter details: | Handle invalid parameter details. |
| 3.c. | Empty parameter field: | Handle empty parameter field error. |
| 3.d. | Incomplete form submission: | Handle incomplete form. |
| 4.a. | Parameter Save failure: | Handle failure to save details. |
| 6.a. | Incomplete form submission: | Handle incomplete form. |
| 8.a. | Incomplete form submission: | Handle incomplete form. |
| 8.b. | Invalid data in fields: | Handle invalid field data. |
| 10.a. | Incomplete form submission: | Handle incomplete form. |
| 10.b. | Invalid generate report request before saving data: | Handle invalid request. |

**Special requirement**

User should save the estimate details before generating estimate report.

**UC 2: View.** Using this use case the user views the previously saved estimates of both reservoir and pond. There is provision for selection of the type of estimates (reservoir/pond) and then the reference numbers of the selected type is made available in another dropdown list. After selection of the reference number the user can view that estimate or delete it.

*Primary actor:* User

**Stakeholders and interests**

*User*: Wants a user-friendly environment and proper steps for viewing the previously saved estimates.

*Pre-condition*: The homepage is displayed with ‘View’ option for viewing the estimates.

*Post-conditions*: The selected estimate is shown with options of printing.

**Main success scenario**

1. User clicks ‘View’ in the homepage menu bar.
2. System opens the form for selecting the type and reference number of the estimate.
3. User selects the type of estimate from the available options.
4. System loads the reference numbers of the selected type in the reference number list.
   1. User selects the reference number from the list and clicks “View Estimate Details” button.
   2. User selects the reference number from the list and clicks “Delete Estimate Details” button.
   3. System opens the selected estimate for viewing with printing option.
   4. System deletes the selected estimate permanently.
   5. System displays ‘Estimate delete successful’ message.

**Extensions**

5a. User clicks “View Estimate Details” without selecting reference number: Handles invalid request.

5b. User clicks “Delete Estimate Details” without selecting reference number: Handles invalid request

**Special requirement**

User should select type and reference number before viewing estimate.

**UC 3: Rate.** Using this use case the user can update new rates, make changes in the current rates, delete old/obsolete rates and modify old rates to new rates. There is provision of the mentioned facilities in a user friendly manner.

*Primary actor*: User

**Stakeholders and interests**

*User*: Wants a user-friendly environment for rate management.

*Pre-condition*: The homepage is displayed with ‘Rate’ option for rate management.

*Post-conditions*: The required rate management task is achieved successfully.

**Main success scenario**

1. User clicks ‘Rate’ in the homepage menu bar.
2. User selects New tab.
   1. System displays a user-friendly interface with new reference number for entering new rate.
   2. User enters necessary details and clicks “Add” button.
   3. System saves the new rate information.
   4. System displays ‘New rate entry successful’ message.
3. User selects Modify tab.
   1. System displays a user-friendly interface with previous rate reference numbers for rate modification.
   2. User selects a rate reference number for modification.
   3. System loads all rate details of the selected reference number.
   4. User clicks “Edit” button for modifying field contents.
   5. System converts the read only fields as editable fields.
   6. User makes necessary changes and clicks “Update”
   7. System saves the modified rate information under the same rate reference number.
   8. System displays ‘Rate modification successful’ message.
4. User selects Modify to new tab.
   1. System displays a user-friendly interface with previous rate reference numbers for modifying old rate to new rate.
   2. User selects a rate reference number for modification.
   3. System loads all rate details of the selected reference number.
   4. User clicks “Edit” button for modifying field contents.
   5. System converts the read only fields as editable fields.
   6. User makes necessary changes and clicks “Create New”.
   7. System saves the modified rate information under a New rate reference number.
   8. System displays ‘Rate modification to new successful’ message.
5. User selects Delete tab.
   1. System displays a user-friendly interface with previous rate reference numbers for deleting old rate.
   2. User selects a rate reference number for deletion.
   3. System loads all rate details of the selected reference number.
   4. User clicks “Delete” button for deleting the old rate.
   5. System deletes the old rate from system.
   6. System displays ‘Rate deletion successful’ message.

**Extensions**

|  |  |  |
| --- | --- | --- |
| 2.2.a. | Invalid field details: | Handle invalid field details. |
| 2.2.b. | Empty field error: | Handle empty field error. |
| 2.2.c. | Incomplete form submission: | Handle incomplete form. |
| 2.3.a. | Rate data Save failure: | Handle rate data save failure. |
| 3.6.a. | Invalid field details: | Handle invalid field details. |
| 3.6.b. | Empty field error: | Handle empty field error. |
| 3.6.c. | Incomplete form submission: | Handle incomplete form. |
| 3.7.a. | Rate data modify failure: | Handle rate data modify failure. |
| 4.6.a. | Invalid field details: | Handle invalid field details. |
| 4.6.b. | Empty field error: | Handle empty field error. |
| 4.6.c. | Incomplete form submission: | Handle incomplete form. |
| 4.7.a. | Rate data modify to new failure: | Handle rate data modify to new failure. |
| 5.4.a. | Incomplete form submission: | Handle incomplete form. |
| 5.5.a. | Rate data delete failure: | Handle rate data delete failure. |

**Special requirement**

The user must select a type of work out of the available options to continue with the rate management tasks.

**UC 4: About.** Using this use case the user can view the details of the softwares build and developer contact information.

*Primary actor*: User

**Stakeholders and interests**

*User*: Wants a user-friendly interface to view the software details.

*Pre-condition*: The homepage is displayed with ‘About’ option to view the software details.

*Post-conditions*: The required software details are displayed in a well arranged format.

**Main success scenario**

1. User clicks ‘About’ in the homepage menu bar.
2. System displays a user-friendly form containing different tabs with different information regarding the software and the developer.
3. User views all the information and closes the form.

**UC 5: Earth work calculator.** Using this use case the user can directly calculate the earthwork volume and cost involved. However this is temporary i.e. no calculation details will be saved neither will any report be generated.

*Primary actor*: User

**Stakeholders and interests**

*User*: Wants a user-friendly interface to view the earthwork volume and cost involved.

*Pre-condition*: The homepage is displayed with ‘Earth work calculator’ option in its context menu.

*Post-conditions*: The required earthwork volume and the cost involved is calculated successfully.

**Main success scenario**

1. User clicks ‘Earth work calculator’ in the context menu.
2. System displays a form for calculation of the above.
3. User enters the details mentioned on the form and clicks “Calculate” button.
4. System displays the earthwork volume and the cost involved.
5. User clicks “Reset” button to do another calculation.
6. System resets all the fields for fresh calculation.

**Extensions**

|  |  |  |
| --- | --- | --- |
| 3.a. | Invalid parameter details: | Handle invalid parameter details. |
| 3.b. | Empty parameter field: | Handle empty parameter field error. |
| 3.c. | Incomplete form submission: | Handle incomplete form. |

**Special requirement**

The user must enter the rate field value in order to calculate the cost of the earthwork. If no value is given then the rate is assumed to be zero.

**UC 6: Slope calculator.** Using this use case the user can calculate the slope in percentage from the slope given in Vertical : Horizontal or Perpendicular : Base.

*Primary actor*: User

**Stakeholders and interests**

*User*: Wants a user-friendly interface to calculate the slope in percentage.

*Pre-condition*: The homepage is displayed with ‘Slope calculator’ option in its context menu.

*Post-conditions*: The required slope in percentage is calculated successfully.

**Main success scenario**

1. User clicks ‘Slope calculator’ in the context menu.
2. System displays a form for calculation of the above.
3. User enters the details mentioned on the form and clicks “Calculate” button.
4. System displays the slope in percentage.
5. User clicks “Reset” button to do another calculation.
6. System resets all the fields for fresh calculation.

**Extensions**

|  |  |  |
| --- | --- | --- |
| 3.a. | Invalid parameter details: | Handle invalid parameter details. |
| 3.b. | Empty parameter field: | Handle empty parameter field error. |
| 3.c. | Incomplete form submission: | Handle incomplete form. |