

Weather Data Project

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Stated problems:

1. View several recordings in the main table.
2. Make it possible to add recordings .
3. Make it possible to delete recordings.
4. Make it possible to edit recordings.
5. Sort the database by location and date in several orders.
6. Consider a logo for such an application.
7. Create a registration window for new users (additional feature).
8. Make a button for saving changes (additional feature).

General information

Overall, I tried to follow the specification. The main window (pic. 1) shows the general information about weather in Australia like date, location and index number. They can be sorted in several ways, by pushing the name of column (date: from earliest to eldest/from eldest to earliest; location: A - Z/Z - A; index number: from 1 to 24998/ from 24998 to 1). The database can be filtered by index number with the use of "Search:". One click on the row shows all information about it (pic. 2).

The screenshot shows a Windows application titled "MainWindow". It has a menu bar with "help". The main content area has a green background and is titled "Records of Weather Data in Australia". It contains a table with columns "Date" and "Location". The table lists records with index numbers 24998 down to 24994, all dated 2013-03-12 to 2013-03-08 and located in Penrith. To the right of the table is an "Authorization" box with "Login" and "Password" fields and a "Sign in" button. Below the table are "Add" and "Delete" buttons, a "Search:" label, and a "GO!" button. At the bottom, there is a detailed view for a selected record, showing fields for Date, Location, MinTemp, MaxTemp, Rainfall, WindGustDir, WindGustSpeed, WindDir 9am, WindDir 3pm, WindSpeed 9am, WindSpeed 3pm, Humidity 9am, Humidity 3pm, Pressure 9am, Pressure 3 pm, Cloud 9am, Cloud 3pm, Temp 9am, Temp 3pm, Rain Today, RISK_MM, and Rain Tomorrow.

	Date	Location
24998	2013-03-12	Penrith
24997	2013-03-11	Penrith
24996	2013-03-10	Penrith
24995	2013-03-09	Penrith
24994	2013-03-08	Penrith

Buttons: Add, Delete, Search: [], GO!

Authorization:

Login: []
Password: []
Sign in

Fields:

#		
Date	[]	Humidity 9am []
Location	[]	Humidity 3pm []
MinTemp	[]	Pressure 9am []
MaxTemp	[]	Pressure 3 pm []
Rainfall	[]	Cloud 9am []
WindGustDir	[]	Cloud 3pm []
WindGustSpeed	[]	Temp 9am []
WindDir 9am	[]	Temp 3pm []
WindDir 3pm	[]	Rain Today []
WindSpeed 9am	[]	RISK_MM []
WindSpeed 3pm	[]	Rain Tomorrow []

Picture 1

The screenshot shows a web application window titled 'MainWindow'. At the top, there is a 'help' link. The main heading is 'Records of Weather Data in Australia'. Below this, there is a table with columns 'ID', 'Date', and 'Location'. The table contains five rows of data, with the first row (ID 24998) highlighted. To the right of the table is an 'Authorization' box with fields for 'Login' and 'Password', and a 'Sign in' button. Below the table, there are buttons for 'Add' and 'Delete', and a search bar with a 'GO!' button. At the bottom, there is a detailed weather data form for a specific location (Albury) on a specific date (2008-12-02). This form includes fields for various weather parameters such as Humidity, Pressure, Cloud, Temp, Rainfall, WindGustDir, WindGustSpeed, WindDir, WindSpeed, and Rain Tomorrow.

ID	Date	Location
24998	2013-03-12	Penrith
24997	2013-03-11	Penrith
24996	2013-03-10	Penrith
24995	2013-03-09	Penrith
24994	2013-03-08	Penrith

Buttons: Add, Delete, Search: [input], GO!

Authorization box: Login [input], Password [input], Sign in [button]

Weather Data Form (Albury, 2008-12-02):

Date	2008-12-02	Humidity 9am	44.0
Location	Albury	Humidity 3pm	25.0
MinTemp	7.4	Pressure 9am	1010.6
MaxTemp	25.1	Pressure 3 pm	1007.8
Rainfall	0.0	Cloud 9am	
WindGustDir	WNW	Cloud 3pm	
WindGustSpeed	44.0	Temp 9am	17.2
WindDir 9am	NNW	Temp 3pm	24.3
WindDir 3pm	WSW	Rain Today	No
WindSpeed 9am	4.0	RISK_MM	0.0
WindSpeed 3pm	22.0	Rain Tomorrow	No

Picture 2

Under the data table you can find two buttons. The right one – “Add” – is responsible for adding a new row with some information (pic. 3). The left bottom – “Delete” – is responsible for deleting chosen row. Moreover, there is an ability to edit data in the table by double click and save it by pressing “Enter” on the keyboard. Also, on the right side of the window there is something like authorization box, where you can type your Login and Password but, unfortunately, it doesn’t work correctly, so it is just like a decoration.

Dialog

Enter Data About Weather

#

Date

Location

MinTemp

MaxTemp

Rainfall

WindGustDir

WindGustSpeed

WindDir 9am

WindDir 3pm

WindSpeed 9am

WindSpeed 3pm

Humidity 9am

Humidity 3pm

Pressure 9am

Pressure 3pm

Cloud 9am

Cloud 3pm

Temp 9am

Temp 3pm

Rain Today

RISK_MM

Rain Tomorrow

OK Cancel

Picture 3

Results:

1. The dataset can be sorted in lexicographical order (both ascending and descending), by date and number (also in two directions).
2. New rows can be created.
3. The data can be edited.
4. The opportunity to delete data is implemented.
5. Search mechanism for finding data by its index number is created.
6. Logo is drawn.
7. Tried to create registration box (unsuccessfully).

Conclusion

Summing it all up, all mandatory tasks are covered with some minor differences in the design of the windows.

Given Specification:

Weather Data

- A well-known Australian meteorological company has asked you to create an application that will store records of weather data and allow you to edit them.
- **Data model**
 - The database was taken from the [site](#)
 - Dataset is structured by its attributes:
 - “#” - Index of a record (int)
 - “Date” - Date of a record (string)
 - “Location” - A place where the record was made (string)
 - “MinTemp” - Minimal temperature that was detected (float)
 - “MaxTemp” - Maximal temperature that was detected (float)
 - “Rainfall” - Precipitation amount (float)
 - “Evaporation” - Evaporation amount (float)
 - “Sunshine” - Amount of sunlight (float)
 - “WindGustDir” - Wind direction (string)
 - “WindGustSpeed” - Wind speed (float)
 - You can delete “Evaporation” and “Sunshine” attributes
- **Main Features**
 - Ability to view recordings (Only #, date and location. Other information appears only if the user clicks on a record)
 - Ability to add recordings (New special window) (Check if new data has the same type as the whole column if it has not, the application has to show an error message)
 - Ability to delete recordings (A button at the bottom of the application which deletes a chosen record)
 - Ability to edit recordings (Check if new data has the same type as the whole column if it has not, the application has to show an error message)
 - Filters by location and date (In any suitable way)
- **Additional Features**
 - Button to save edited data
 - Registration and login (First screen)(people with only Admin role can edit and delete records)(The admin role is selected at the registration stage)
- **GUI sketch**

Login

Password

Registration (Button) Login (Button)

Login

Password

Admin role (Check Box)

Register

Logo Add new record

Delete the record Edit the record

Data record (clickable)

Data record (clickable)

Extended data record

Data record (clickable)

of a new record

date of a new record

location of a new record

min temp of a new record

max temp of a new record

Add new record(button)

Data to edit

Data to edit

Data to edit

Data to edit

Data to edit

Save changes (button)