

Data processing

1. Final task assignment

This mission is to be performed using the relational DBMS (Database Management System) Microsoft Access 2016.

Contestants will perform the following key tasks:

- ✓ Contestants must create a database of travel management and reservation at the match playground.
- ✓ Contestants must create a database on their personal computer (not connected to the local and global networks), configure tables to populate information, establish relationships between tables, and configure the forms necessary to enter information into the created tables.
- ✓ The contestants then create update queries, parameter queries, and queries using functions.
- ✓ The contestant also creates a form that separates the user's and administrator's privileges through the login and produces the results of each form.
- ✓ If there is no user ID, you must be able to log in as a member through membership registration.
- ✓ The result of the assigned task is a fully functioning main Access switchboard with defined buttons, and the main menu changes depending on the login.
- ✓ Therefore, when you run this database, the login screen should automatically appear.

Precautions, Notes, and Safety Tips

- ✓ Contestants observe safety and hygiene regulations while working with computers. Competitors communicate in English with guests and judges.
- ✓ Contestants are not allowed to communicate directly with judges in their home countries.
- ✓ Organizers provide contestants with computers with software installed.
- ✓ To create a database and populate information, you need a Windows operating system and MS Access 2016 and MS Excel 2016 software.
- ✓ If you are caught cheating, talking to one of the visitors, or using a mobile phone, you will be penalized 5 points for the first offense. In the event of a second offense, the eligibility to participate in the competition will be disqualified.
- ✓ All desk computers will be equipped with an AZERTY keyboard. However, Contestants can install and use a keyboard/mouse without macro function after review by the judges.
- ✓ The jury will collect all electronic means of communication contestants may have (Cell phone, tablet computers...) at the beginning of the competition. They will be returned to their owners once the competition is finished.

- ✓ Contestants will save their work on a USB flash drive and hand it to the jury for evaluation.

2. Allocated time: 3h00

The contest duration is 3 hours 00 minutes.

3. Requirements

Module 1. Create a database structure

Allotted time: 20 minutes

1. Database

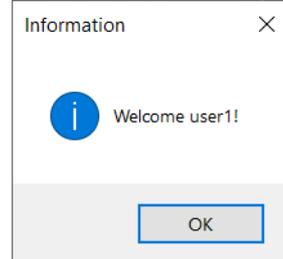
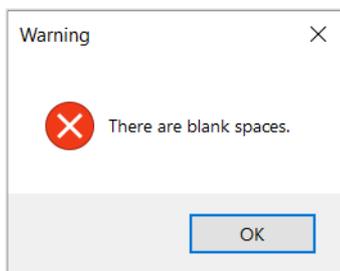
- Create a "Travel Reservation Management" database that travels from Paris to each country.

A. Common conditions

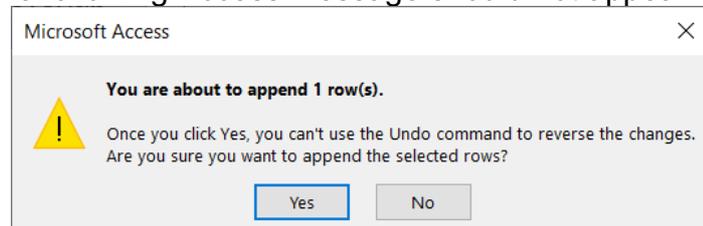
- Move to the previous page when all pages except EXIT are closed
- Apply an icon ( logo.ico) to the title bar of all pages and reports. However, if there are DB and icon files in the same folder, they will appear even if you change the folder.

B. Message example

- warning message example) information message example)



- The following Access message should not appear.



2. Create table

- Create the following table using 'DATA.xlsx'.

A. Member

Field Name	Data Type	condition	note
M_No	AutoNumber	PK	
ID	Short Text		
PW	Short Text		
Mileage	Number		euro / 2 decimal places
DateOfBirth	Date/Time		

B. Country

Field Name	Data Type	condition	note
C_No	AutoNumber	PK	
CountryName	Short Text		
AccruedMileage	Number		
CountryImage	Attachment		Country folder

C. Travel

Field Name	Data Type	condition	note
T_No	AutoNumber	PK	
C_No	Number	FK	Country
ArrivalName	Short Text		
Minute	Number		1 or more (integer)
TimeTaken	Date/Time	Run on TimeUp query	Run on TimeUp query
Amount	Number		euro / 2 decimal places
Explanation	Long Text		
TravellImage	Attachment		Travel folder

- The 'C_No' field uses 'Country' to show 'CountryName', and the actual input value is 'C_No'.



- If 'Minute' is less than or equal to 0, a warning phrase 'Please enter a number greater than 1.' is invoked.

D. Airline

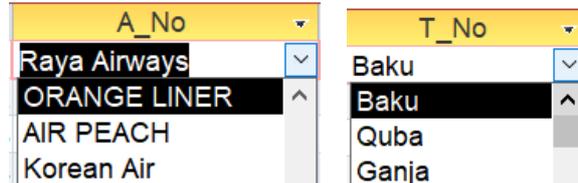
Field Name	Data Type	condition	note
A_No	AutoNumber	PK	
AirlineName	Short Text		
Code	Short Text		
C_No	Number	FK	Country

- The 'C_No' field uses 'Country' to show 'CountryName', and the actual input value is 'C_No'.

E. Schedule

Field Name	Data Type	condition	note
S_No	AutoNumber	PK	
A_No	Number	FK	Airline
DepartureDate	Date/Time		
T_No	Number	FK	Travel
DepartureTime	Date/Time		
Gate	Number		1 or more (integer)

- The 'A_No' field uses 'Airline' to show 'AirlineName', and the actual input value is 'A_No'.
- The 'T_No' field uses 'Travel' to show 'TravelName', and the actual input value is 'T_No'.



- If 'Gate' is less than or equal to 0, a warning phrase 'Please enter a number greater than 1.' is invoked.

F. Reservation

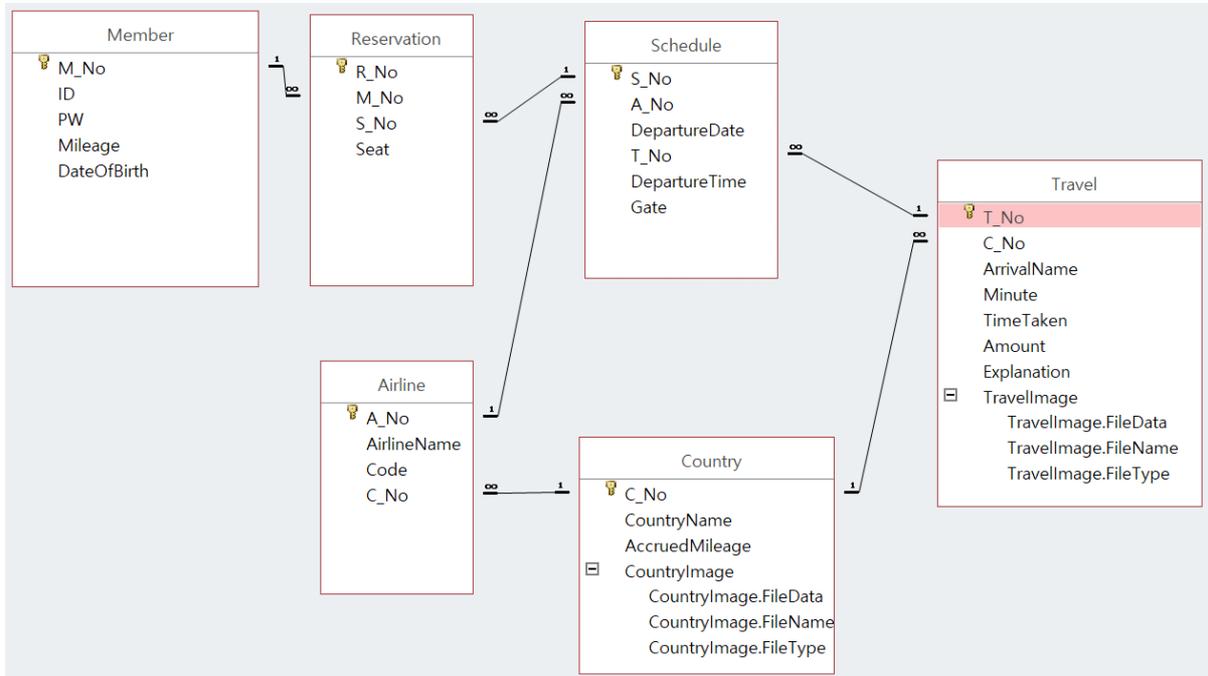
Field Name	Data Type	condition	note
R_No	AutoNumber	PK	
M_No	Number	FK	Member
S_No	Number	FK	Schedule
Seat	Short Text		

- The 'M_No' field uses 'Member' to show 'ID', and the actual input value is 'M_No'.
- The 'S_No' field uses 'Schedule' / 'Travel' to show 'AirlineName'/'ArrivalName', and the actual input value is 'S_No'.



3. Relationship and referential integrity rules

- All tables have a one-to-many relationship.
- Maintain referential integrity.
- Relevant fields can be updated.
- Deleting a record deletes all related records.



Module 2. Query

Allotted time: 20 minutes

1. Update Query

- Query name : TimeUP
- Execute the query and apply the following to the 'TimeTaken' field using the 'Minute' field of the 'Travel' table.

 TimeUp

T_No	C_No	ArrivalName	Minute	TimeTaken	Amount	Explanation
1	Azerbaijan	Baku	480	8:00	€292.00	Azerbaijan's capital and largest city
2	Azerbaijan	Quba	460	7:40	€328.00	Waterfalls, mountains and lakes
3	Azerbaijan	Ganja	450	7:30	€364.00	
4	Bangladesh	Dhaka	650	10:50	€620.00	Bangladesh's largest city, 700 mosques
5	Bangladesh	Rajshahi	630	10:30	€605.00	Padma Garden,
6	Bangladesh	Rangpur	690	11:30	€583.00	

2. Parameter Query

- Query name : SearchByCountry

Enter Parameter Value ? X

Enter part or all the ArrivalName to be searched

t

OK Cancel

- When 'SearchByCountry' query is executed, the parameter input window appears.
- Extracts records that include the input value among 'ArrivalName' and counts them.
- Calculates the sum of the total number of extracted records.

CountryName	ArrivalName	Explanation	Number of Reservations
Bangladesh	Chittagong		591
Bangladesh	Silet	City of saints	543
Chinese Taipei	Taichung		614
Chinese Taipei	Tainan	The oldest city in Taiwan and the first city to be developed on the island of Taiwan.	585
Chinese Taipei	Taipei	Taiwan's capital and largest city	507
Japan	Kyoto	Temples and Shrines, World Heritage Sites, Museums	546
Japan	Tokyo	The capital of Japan, the center of Japanese politics, economy, culture, education, finance, industry, transportati	546
Malaysia	Kota Kinabalu	The largest city on the island of Borneo in eastern Malaysia.	567
Total			4499

3. Select Query

- Query name: ReservationRankingByCountry

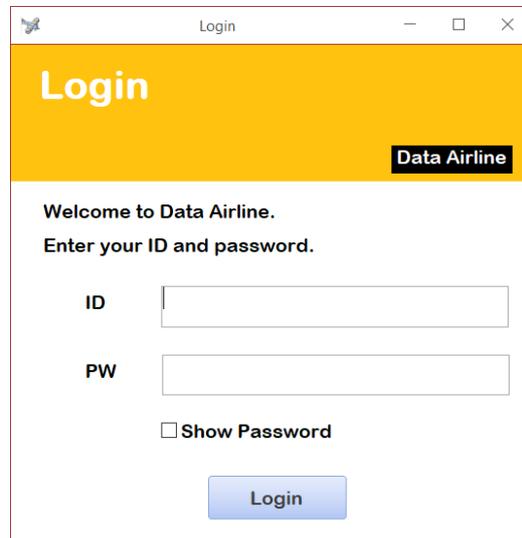
CountryName	Count	Ranking
Malaysia	4121	1
Japan	3218	2
Korea	3218	2
China	2907	4
Bangladesh	2675	5
Chinese Taipei	2179	6
Azerbaijan	1706	7
Total	20024	

- Retrieve the number of reservations and ranking by 'CountryName'. However, if the ranking is the same, it is in the order of 'C_No'.
- Sort by 'Ranking' in ascending order.
- Calculate the total sum of 'Count' at the bottom.

Module 3. Basic interface

Allotted time: 40 minutes

1. Login' PAGE



The screenshot shows a web browser window titled 'Login'. The page has a yellow header with the word 'Login' in white and a 'Data Airline' logo in the top right corner. Below the header, the text reads 'Welcome to Data Airline. Enter your ID and password.' There are two input fields: 'ID' and 'PW'. Below the 'PW' field is a checkbox labeled 'Show Password'. At the bottom is a blue 'Login' button.

A. PAGE DESIGN

- Mark PW as *.
- When Show Password is checked/unchecked, *** ↔ input characters are changed.

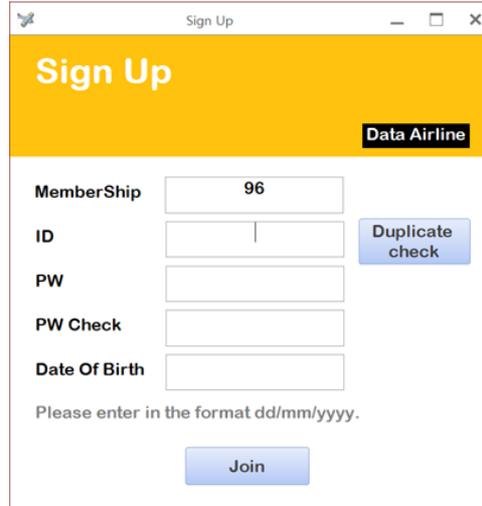
B. Control the [Login] button as follows.

- Blank control → warning: There are blank spaces.
- error control → warning message → delete content, keep cursor
 - If the ID is not a member ID or "admin" → warning: ID not present.
 - If the ID is correct and the password is incorrect → warning: Please check your password.
- In case of 3 errors → warning: Exit with 3 errors. → Exit the login page → 'Main' PAGE

C. If the ID/PW of the member is correct → information: Welcome OOO! → 'Member Main' Page

D. If you are an administrator (admin/1234) → information: Welcome administrator! → 'Admin Main' Page

2. 'Sign Up' PAGE



A. PAGE DESIGN

- In MemberShip, make sure that the last number +1 is automatically uploaded to the 'Member' table and cannot be entered or modified.

B. Control the [Duplicate check] button as follows.

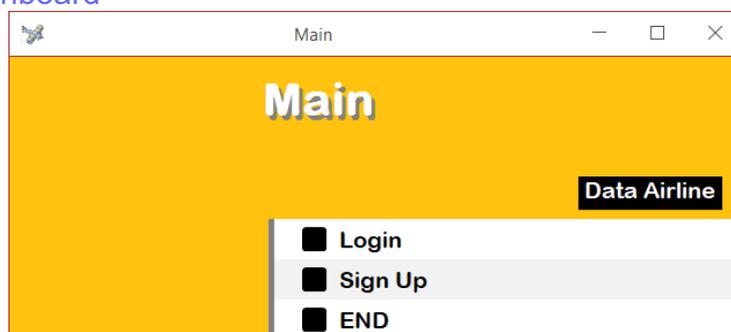
- If blank → warning: Please enter your ID. → keep cursor
- Exists in Member or admin → warning: This ID already exists.
- If the ID is usable → information: ID available.

C. Control the [Join] button as follows.

- Blank control → warning: There are blank spaces. → Keep focus on blank
- Error control → content deletion / cursor maintenance
- If 'PW' and 'PW Check' are not the same → warning: 'PW' and 'PW Check' are not the same.
- If 'Date Of Birth' is not in 'dd/mm/yyyy' format or is in the future → warning: Not in date format or future controlled.
- When the [Duplicate check] button is not clicked → warning : Please 'Duplicate check'.

- D. Satisfy input conditions → information: Sign up is complete. → Close 'Sign up' PAGE → It is entered in the "Member" table (mileage 100).

3. 'Main' Switchboard



- A. Opened at project start.

- B. Connect each button.

- C. Click the 'END' button. → End of database.

Module 4. User interface

Allotted time: 50 minutes

1. Reservation' PAGE

A. PAGE DESIGN

- [a] area is designed as a parent page, and [b] area is designed as a sub-page according to 'Schedule'.

B. TOP PAGE

- The logged-in member ID appears in the 'User ID' field, and cannot be modified.
- For 'Schedule', the entire S_No is uploaded.
- If you select the number in the 'Schedule' combo box, the sub-page [Flight Schedule] is automatically uploaded.

C. SUB PAGE

- The 'Arrival Time' of the sub-page is obtained using 'DepartureDate', 'DepartureTime', and 'Minute'.

D. Control the [Information] button as follows.

- If S_No is not selected → warning: Please select a schedule number.
- The information of S_No opens to the 'Travel Guide' PAGE.

E. Control the [Reservation] button as follows.

- Blank control → warning: There are blank spaces.
- Error control → warning: Check your seat. → delete content, keep cursor
 - If the first letter of Seat is F and the numbers are not 01 to 05
 - If the first letter of Seat is B and the numbers are not 01 to 10
 - If the first letter of Seat is E and the numbers are not 01 to 50
- If the seat is already reserved for the schedule → warning: This seat has already been reserved.

F. Condition satisfied → page exit → Save to "Reservation" table

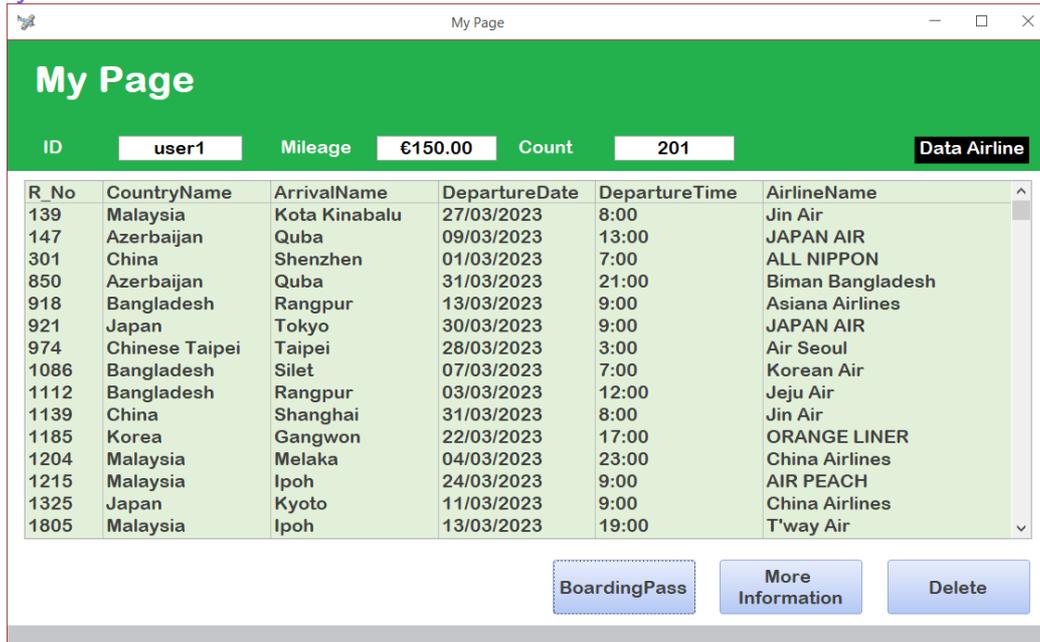
- information: Reservation is complete.
- Mileage in the "Member" table is credited.

2. 'Travel Guide' PAGE



A. If there is no explanation, "No explanation" is displayed.

3. 'My PAGE' PAGE



A. PAGE DESIGN

- The information of the logged in member is displayed and cannot be modified.

B. If no record is selected → warning: Choose a Record.

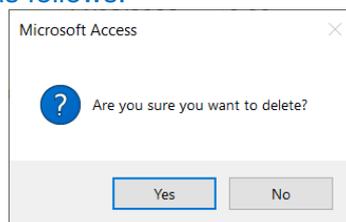
C. Control the [BoardingPass] button as follows.

- The 'BoardingPass' PAGE of the selected record appears.

D. Control the [More Information] button as follows.

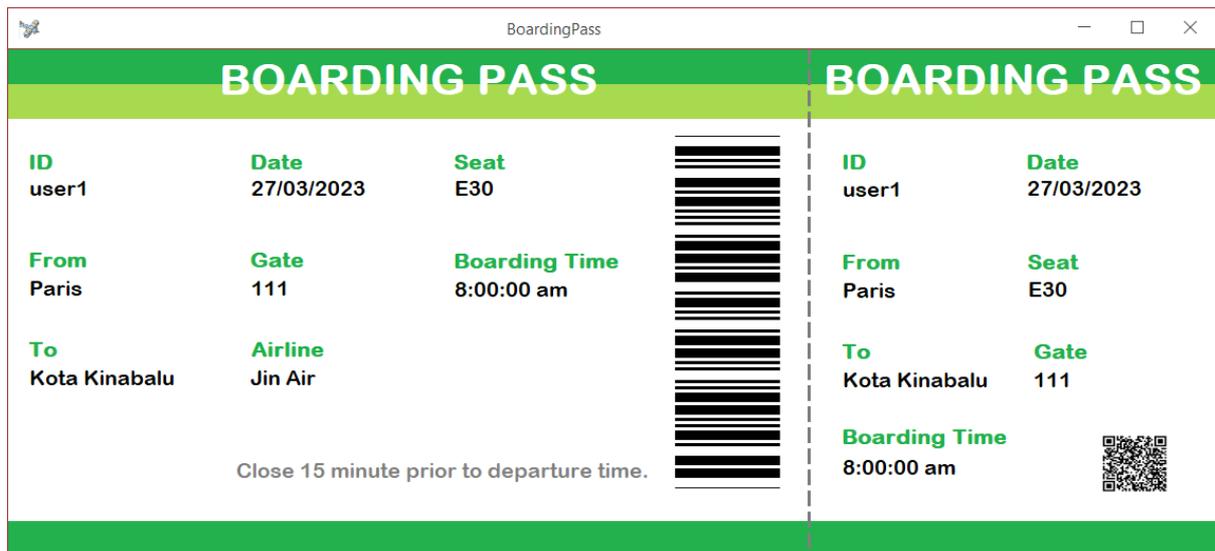
- The 'Travel Guide' PAGE of the selected record appears.

E. Control the [Delete] button as follows.

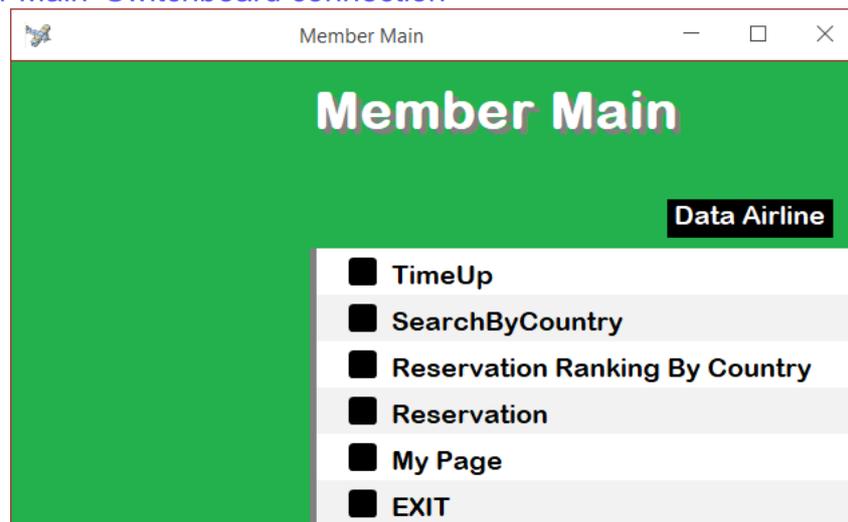


- [Yes] → information: Delete is complete. → Accumulated mileage will be deleted.
 However, the minimum amount after mileage deduction is zero.
- The records in the 'Reservation' table are also deleted.

4. 'BoardingPass' PAGE



5. 'Member Main' Switchboard connection

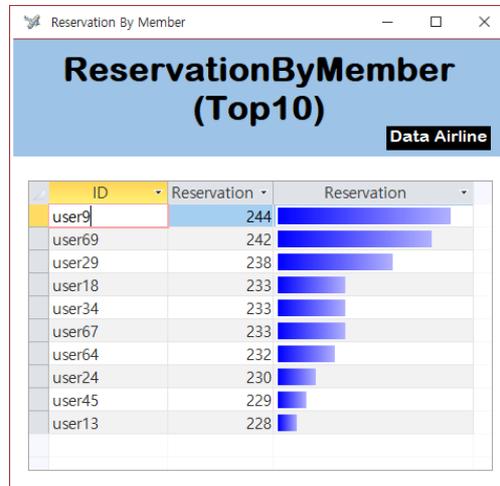


- Click 'TimeUp'.
 - Run 'TimeUp' → information: 'TimeTaken' change completed.
- Click 'SearchByCountry' to display the 'SearchByCountry' PAGE
 - If there are no search results, do not open the page → information: No search results.
- Click 'Reservation Ranking By Country', the query 'ReservationRankingByCountry' appears.
- Click 'Reservation' to display the 'Reservation' PAGE.
- Click 'My PAGE' to display the 'My PAGE' PAGE.
- Clicking 'EXIT' closes the 'Member Main' PAGE and opens the 'Main' PAGE.

Module 5. Administrator interface

Allotted time: 50 minutes

1. 'Reservation By Member' PAGE



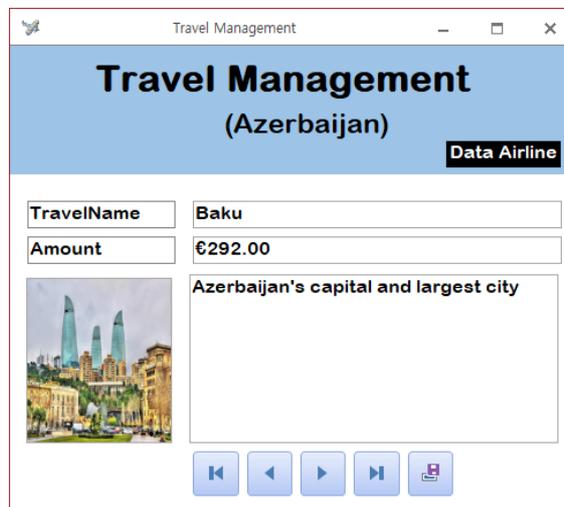
The screenshot shows a window titled 'Reservation By Member' with a 'Data Airline' logo. The main heading is 'ReservationByMember (Top10)'. Below the heading is a table with columns for 'ID', 'Reservation', and 'Reservation'. The table lists the top 10 users by reservation count, with horizontal bar charts representing the reservation counts for each user.

ID	Reservation	Reservation
user9	244	
user69	242	
user29	238	
user18	233	
user34	233	
user67	233	
user64	232	
user24	230	
user45	229	
user13	228	

A. PAGE DESIGN

- Get the total number of reservations per member and sort in descending order. However, if the number of reservations is the same, they are sorted in ascending order of member number.
- Displays the percentage table for the number of reservations.

2. 'Travel Management' PAGE



The screenshot shows a window titled 'Travel Management' with a 'Data Airline' logo. The main heading is 'Travel Management (Azerbaijan)'. Below the heading is a form with fields for 'TravelName' (Baku) and 'Amount' (€292.00). There is also a description field containing 'Azerbaijan's capital and largest city' and an image of Baku. At the bottom, there are navigation buttons: first, previous, next, last, and a print button.

A. PAGE DESIGN

- Only the image (double-click), amount, and description can be edited.
- You can move (first / previous / next / last) by clicking the record movement button.
- When clicking first/previous in the first record → information: This is the first record.
- When clicking Next/Last on the last record → information: This is the last record.
-  Click → information: Description corrected. → Edit information

3. 'Register Flight Schedule' PAGE

A. PAGE DESIGN

- Code combo comes with the code of 'Airline'.
- Travel combo comes with 'ArrivalName'.

B. Control the [Register] button as follows.

- Blank control → warning: There are blank spaces. → Keep focus on blank
- Error control → warning message → delete content, keep cursor
- If 'DepartureDate' is less than the present or the date format is not dd/mm/yyyy → Enter into the future
- If the format of 'DepartureTime' is not hh:mm time → Check the time.
- If 'Gate' is not a number → Please enter in numbers.
- Condition satisfied → Save to "schedule" table → information: Flight schedule has been registered.

4. 'Reservation Status By Country' Report

C. Report DESIGN

- When the report is executed, the input window appears, and the report of the corresponding input value (ArrivalName) is displayed in the page of a print preview.

- If there is no input or it is empty → warning: No results were found for your search.
- At the top of the first page, the country name, number of reservations, amount, and total amount are displayed according to the input.
- Each record is distinguished by a different background color.
- Dates exclude duplicates.
- Each page is indicated as current page / total page as shown in the following figure.
- At the bottom of the last page, the end display color and company logo (Data Airline) are displayed.

ReservationStatusByCountry Japan

DepartureDate	M_No	AirlineName
Total Number of People : 546cases Amount : €627.00 Total Amount £342,342.00		
Tokyo		
01/03/2023	7	HAINAN
	23	Raya Airways
	24	Silk Way Airlines
	26	FlyFirefly
	35	HAINAN
	38	Silk Way Airlines
	44	United Airways
	57	Raya Airways
	57	United Airways
	62	Raya Airways
	74	United Airways
	80	HAINAN
	81	SHANGHAI AIR
	86	Raya Airways
	94	United Airways
02/03/2023	3	Jeju Air
	16	SHENZHEN AIR
	17	United Airways
	19	AIR CHINA
	20	FlyFirefly
	30	FlyFirefly
	31	Raya Airways
	32	AIR CHINA
	39	United Airways
	43	Biman Bangladesh
	45	FlyFirefly
	47	China Airlines
	49	Raya Airways
	60	FlyFirefly
	61	Raya Airways
	68	Raya Airways
	70	China Airlines
	71	Silk Way Airlines
	76	S Tarlux Airlines
	78	China Airlines
	79	Jeju Air
	82	Raya Airways
	83	ALL NIPPON

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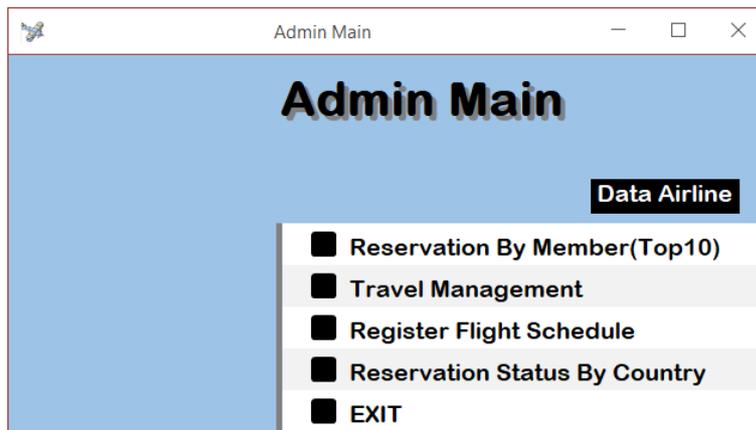
ReservationStatusByCountry

DepartureDate	M_No	AirlineName
31/03/2023	93	Azerbaijan airlines
	94	CHINA SOUTHERN

Data Airline

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5. 'Admin Main' Switchboard connection



- A. When you click 'Reservation By Member(Top10)', the 'Reservation By Member' PAGE appears.
- B. Click 'Travel Management' to display the 'Travel Management' PAGE.
- C. Click 'Register Flight Schedule' to display the 'Register Flight Schedule' PAGE.
- D. Click 'Reservation Status By Country' to display the 'Reservation Status By Country' report.
- E. Click 'EXIT' to close the 'Admin Main' page and display the 'Main' PAGE.

4. Procedure

Day-1 (March 23rd): The day before the competition, contestants will be welcomed on the stand by the jury. A briefing about the organization of the competition will be given and the workstations will be chosen at random. Due to the large number of registered contestants, the competition will be organized in two groups. Contestants from a same delegation will inevitably be placed in the same group. Each contestant will receive a schedule with detailed working hours. Contestant will draw lots to be assigned to a work place, where they may drop off their tools.

Composition of the groups

Group 1: 3 contestants	Group 2: 3 contestants
Chinese Taipei, 1 contestant	China, 1 contestant
Japan, 2 contestants	Korea, 1 contestant
	Malaysia, 1 contestant

Day 1 (March 24th): Contestants from Group 1 will have 3 hours to complete their task assignment. Contestants from Group 2 will go on an organized trip.

Day 2 (March 25th): Contestants from Group 2 will have 3 hours to complete their task assignment. Contestants from Group 1 will go on an organized trip.

5. Scoring criteria

N°	Items to be evaluated	O/S	Scoring scale
Module 1			20
01	Common conditions - Page logo	O	1
02	Common conditions - Error/Information Message Design	O	1
03	Common conditions - Remove Access Default Message	O	1
04	Member Table - Create Member table	O	1
05	Country Table - Create Country Table	O	1
06	Country Table - CountryImage(attachmet link)	O	1
07	Travel Table - Create Travel Table	O	1
08	Travel Table - Set C_No Combo	O	1
09	Travel Table - Minute(1 or more validation)	O	1
10	Travel Table - TravelImage(attachmet link)	O	1
11	Airline Table - Create Airline Table	O	1
12	Airline Table - Set C_No Combo	O	1
13	Schedule Table - Create Schedule Table	O	1
14	Schedule Table - Set A_No Combo	O	1
15	Schedule Table - Set T_No Combo	O	1
16	Schedule Table - Gate(1 or more validation)	O	1
17	Reservation Table - Create Reservation Table	O	1
18	Reservation Table - Set M_No Combo	O	1
19	Reservation Table - Set S_No Combo	O	1
20	Reservation Table - Relationship and referential integrity rules	O	1
Module 2			6
21	Update Query - Query execution result	O	1
22	Parameter Query - Parameters and Query Execution	O	1
23	Parameter Query - 'Number of Reservations' function result	O	1
24	Select Query - 'Count' value calculation	O	1
25	Select Query - Ranking and sorting	O	2
Module 3			16
26	Login - Page Design-*** / Run 'Show Password' (Evaluation criteria : Object position, colors and shape, etc.)	O	1
27	Login - 'ID' presence/absence check	O	1
28	Login - 'ID' and 'PW' mismatch	O	1
29	Login - 3 errors	O	1
30	Login - Member login successful	O	1
31	Login - Administrator login successful	O	1
32	Sign Up - Page Design (Evaluation criteria : Object position, colors and shape, etc.)	O	1

33	Sign Up - 'MemberShip' member +1	O	1
34	Sign Up - Existing ID duplicate control / 'Duplicate check'	O	1
35	Sign Up - Mismatch between 'PW' and 'PW Check'	O	1
36	Sign Up - Date Of Birth' format control (if not date, if future)	O	2
37	Sign Up - Save table	O	2
38	Main - Page Design (Evaluation criteria : Object position, colors and shape, etc.)	O	1
39	Main - Each button run	O	1
Module 4			31
40	Reservation - Page Design (Evaluation criteria : Object position, colors and shape, etc.)	O	1
41	Reservation - Design the top-form and check Login ID	O	1
42	Reservation - Subform design	O	1
43	Reservation - 'Schedule' combo setting and 'Information' button execution	O	1
44	Reservation - Connect subform when 'Schedule' combo is selected	O	1
45	Reservation - Arrival Time' calculation result	O	1
46	Reservation - 'F' seat number control	O	1
47	Reservation - 'B' seat number control	O	1
48	Reservation - 'E' seat number control	O	1
49	Reservation - Control reserved seats	O	1
50	Reservation - Save table	O	2
51	Reservation - Modify mileage in 'Member' table	O	2
52	Travel Guide - Page Design (Evaluation criteria : Object position, colors and shape, etc.)	O	1
53	Travel Guide - Travel value selected on Reservation Page	O	1
54	Travel Guide - Empty Explanation control	O	1
55	My Page - Page Design (Evaluation criteria : Object position, colors and shape, etc.)	O	1
56	My Page - Login member information	O	1
57	My Page - Calculate number of reservations	O	1
58	My Page - Sort 'R_No'	O	1
59	My Page - Click 'BoardingPass' to execute	O	1
60	My Page - Click 'More Information' to execute	O	1
61	My Page - Click 'Delete' to execute	O	2
62	My Page - Delete : Mileage Calculation	O	2
63	Boarding Pass - Page Design (Evaluation criteria : Object position, colors and shape, etc.)	O	1
64	BoardingPass - Selected boarding pass information	O	1
65	Member Main - Page Design (Evaluation criteria : Object position, colors and shape, etc.)	O	1

66	Member Main - Each button run	O	1
Module 5			27
67	Reservation by Member - Page Design (Evaluation criteria : Object position, colors and shape, etc.)	O	1
68	Reservation by Member - Calculate the number of reservations per member	O	1
69	Reservation by Member - Ratio graph	O	1
70	Reservation by Member - Calculate and sort the top 10	O	2
71	Travel Management - Page Design (Evaluation criteria : Object position, colors and shape, etc.)	O	1
72	Travel Management - Run record move button	O	1
73	Travel Management - Modify table	O	2
74	Register Flight Schedule - Page Design (Evaluation criteria : Object position, colors and shape, etc.)	O	1
75	Register Flight Schedule - Code / Travel Combo Settings	O	1
76	Register Flight Schedule - 'DepartureDate' format control (if not date, if future)	O	2
77	Register Flight Schedule - 'Gate' numeric control	O	1
78	Register Flight Schedule - Save table	O	2
79	Reservation status by country - Page Design (Evaluation criteria : Object position, colors and shape, etc.)	O	1
80	Reservation status by country - Extract results according to parameter input (Country Name, Travel Photos)	O	1
81	Reservation status by country - Print preview and page setup	O	1
82	Reservation status by country - 3-item value calculation (1 point each)	P	3
83	Reservation status by country - Hide duplicate dates / sort by 'M_No'	O	1
84	Reservation status by country - Set page number	O	1
85	Reservation status by country- Report footer settings	O	1
86	Member Main - Page Design (Evaluation criteria : Object position, colors and shape, etc.)	O	1
87	Reservation status by country - Each button run	O	1
TOTAL POINTS			100