



# 8th International Abilympics

## Vocational Skills Contest

### V21. Personal DBMS

#### 1. Task Assignment

Construct a database according to the User Requirements and other instructions, and then implement necessary application programs.

- Create tables according to given database design specifications.
- Appropriate data should be added according to the tables created, or external data should be imported for use.
- Create forms that input, modify, query (search), and print data.
- Create the lists, labels and qualification certificates as reports and then print these reports
- Make queries to edit or operate data.

#### A. User Requirements

- This institution performs qualification tests in various areas such as ‘computer applicability’, ‘word processing’, ‘secretary’, and ‘computerized accounting’ etc. The database is for conducting the work of the institution and managing the data needed and produced as a result of the work.
- Various qualifications exist, and each qualification has a test called ‘exam’ which is conducted many times.
- There are two types of exams: Written Test and Practice Test.
- Members shall receive a certificate as they pass the both types of exams, regardless of its order.
- Passing scores differ according to the type of qualification and exam.

## B. Database Design Details

According to the professionals of this field, based on the user requirements, the necessary database design results for conducting the relevant task are as follows.

### B-1. Table and Fields Details

- Member (Member\_\_ID, Name, Address, Gender, Birth\_date, Zip, Phone, E-Mail)
  - Qualification (Qualification\_\_ID, Title, Level, Written\_Score, Practice\_Score)
  - Exam (Exam\_\_No, Qualification\_ID, Date\_Exam, Type, Pass\_Score, Num\_Applicants, Num\_Passed, Status)
  - Applicant (Exam\_\_No, Member\_\_ID, Score, Result)
  - Passing\_Candidate (Qualification\_\_ID, Member\_\_ID, Written\_Date, Practice\_Date, Written\_Score, Practice\_Score, Final\_Pass)
- (Note) Underlined field means the Primary Key (PK)

### B-2. Description of Tables

The [Member] table records the information of the candidates who take the exam. Candidates must be registered in [Member] table prior to taking the exam.

The [Qualification] table manages the data of the qualifications supervised by this institute. Qualifications with the same name are considered different qualifications if the level is different. The passing scores of written and practice exam are stored in each of the 'Written\_Score' and 'Practice\_Score' field.

The [Exam] table manages the information of the exam conducted for the qualification. Several exams are conducted for one qualification. The writing and practice exams are conducted separately. The type of test is saved in the 'Type' field. The 'Pass\_Score' involves the score a candidate should gain to pass and

this may be found in the ‘Written\_Score’ or ‘Practice\_Score’ field of the [Qualification] table. The ‘Num\_Applications’ and ‘Num\_Passed’ fields summarize the applicants for this exam, the numbers of applicants applied and passed, and are shown in the [Applicant] table.

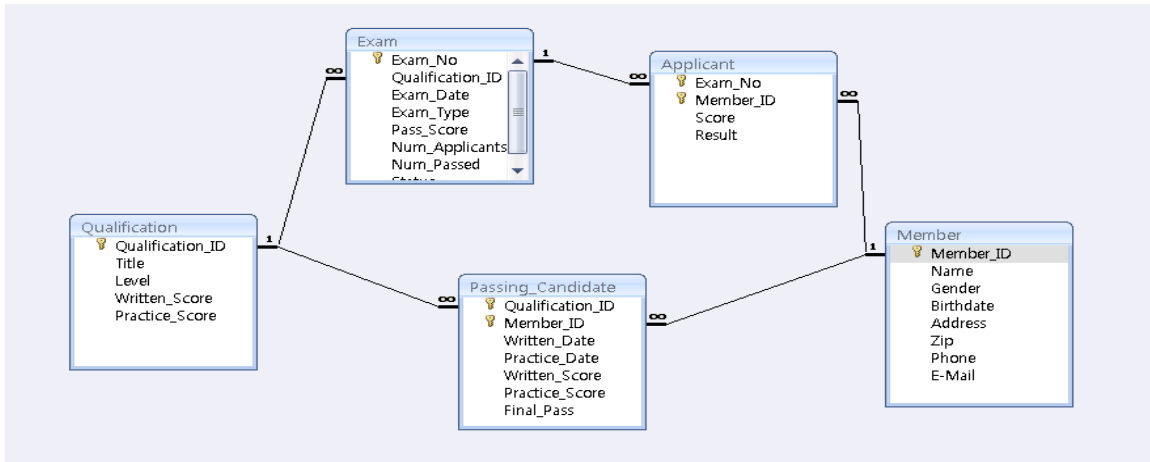
\* Sample data of [Qualification] Table

Qualification_ID	Title	Level	Written_Score	Practice_Score
101	Computer Applicability	1st	60	70
102	Computer Applicability	2nd	60	70
103	Computer Applicability	3rd	60	70
201	Word Processing	1st	60	70
202	Word Processing	2nd	60	70
203	Word Processing	3rd	60	70
301	Secretary	1st	60	70
302	Secretary	2nd	60	70
303	Secretary	3rd	60	70
401	Computerized Accounting	1st	60	70
402	Computerized Accounting	2nd	60	70
403	Computerized Accounting	3rd	60	70

[Applicant] table records the list of candidates, their scores and passing status for each exam. It has a 1: M relation with the [Exam] table, which means that many applicants may apply for one exam. The result of a exam is recorded in the ‘Result’ field as a ‘Pass’ or ‘Fail’, according to standard score for passing and the score a candidate receives.

[Passing\_Candidate] table stores the information of candidates who passed at least one of the two exams (Written or Practice exam) for the qualification. The date of passing and the scores of each exam are recorded in ‘Written\_Date’, ‘Practice\_Date’, ‘Written\_Score’, ‘Practice\_Score’ fields. Whether a candidate passed both types of tests or not is recorded in the ‘Final\_Pass’ field as a ‘True’ or ‘False’ form. The data of [Passing\_Candidate] are created only by the data recorded as ‘Pass’ in the Result field of the [Applicant] table.

### B-3. ERD (Entity Relationship Diagram)



### B-4. Table Specification

#### \* Member

Field Name	Data Type	Field Size	Explanation	Restriction
Member_ID	Text	8		PK
Name	Text	50		
Address	Text	100		
Gender	Text	1	M:Male , F:Female	(M,F)
Birth_Date	Date/Time			Not Null
Zip	Text	10		Not Null
Phone	Text	20		
E-Mail	Text	50		

#### \* Qualification

Field Name	Data Type	Field Size	Explanation	Restriction
Qualification_ID	Number	Integer(Long)		PK
Title	Text	50	Name of Qualification	Not Null
Level	Text	15		
Written_Score	Number	Integer(Long)	Minimum score to pass in each exam type	
Practice_Score	Number	Integer(Long)		

#### \* Applicant

Field Name	Data Type	Field Size	Explanation	Restriction
Exam_No	Number	Integer(Long)		PK,FK
Member_ID	Number	Integer(Long)		PK,FK
Score	Number	Integer(Long)		
Result	Text	4	result of exam	('Pass', 'Fail')

\* Exam

Field Name	Data Type	Field Size	Explanation	Restriction
Exam_No	Number	Integer(Long)		PK
Qualification_ID	Number	Integer(Long)	Referring Qualification to	FK
Date_Exam	Date/Time		The day of exam	
Type	Text	10	Type of Exam	Written, Practice
Pass_Score	Number	Integer(Long)	Minimum score to pass	
Num_Applicants	Number	Integer(Long)		
Num_Passed	Number	Integer(Long)		
Status	Text	6		Closed, Open Default: Open

\* Passing\_Candidate

Field Name	Data Type	Field Size	Explanation	Restriction
Qualification_ID	Number	Integer(Long)		PK,FK
Member_ID	Number	Integer(Long)		PK,FK
Written_Date	Date/Time			
Practice_Date	Date/Time			
Written_Score	Number	Integer(Long)		
Practice_Score	Number	Integer(Long)		
Final_Pass	True/False		1, if passed	

\* Note

- PK means Primary Key. FK means Foreign Key. Not Null means the fields cannot be emptied. Parentheses ( ) means the field can be filled only with the value in ( ).

C. Instructions

(Detailed directions and screen shots shall be given on the day of the contest)

C-1. Create a new Access Database file and create tables according to the details of data design. (15pts)

C-2. Fill the tables with adequate data according to the directions and table specifications. Sample data may be provided in such formats as plain text

(unencrypted data) or 'Excel' etc. Use queries, linked tables, and/or other data transmitting functions. (20pts)

C-3. Create an 'Exam Management' form to manage the information of an exam and its applicants. (20pts)

C-4. Create a form that could manage an applicant of a specific exam and his scores and results. (20pts)

C-5. Create a report according to following directions and then print it. (15pts)

C-6. Implement a feature that performs following functions. Use Macros, procedures, SQLs or all of them. (10 pts)



## 2. Allocated Time



3 Hours

## 3. Requirements

- Given tasks are sequential, therefore contestants are not permitted to go on to the next task if the previous task is unfinished.
- Tables, fields, queries, forms, and reports shall be named as specified but contestants may freely name the control.
- Any method may be allowed to complete the task as long as the results are same.

## 4. List of Materials to be Provided





No.	Material	Picture	Specification	Unit	Qty per person	Note
1	USB storage device		4GB	Each	1	
2	Label		For printing data	Package	1	



No.	Material	Picture	Specification	Unit	Qty per person	Note
3	Writing supplies (pen, computer pen, etc.)		Free	Set	1	
4	Document support		For A4	Each	1	

### 5. List of Tools to be Brought

No.	Tool	Picture	Specification	Unit	Qty	Note
1	Voice card		Free	Each	Free	Limited to the visually-impaired

### 6. List of Facilities Installed at Contest Site

No.	Equipment	Picture	Specification	Unit	Qty	Note
1	Worktable		1,200×750mm	Each	1 per contestant	
2	Chair		For drawing	Each	1 per contestant	
3	Personal computer		Core i5 3.2G, 2G RAM, 320G HDD	Each	1 per contestant	
4	Monitor		19" LCD	Each	1 per contestant	

No.	Equipment	Picture	Specification	Unit	Qty	Note
5	Software		MS-Office 2003	Copy	1 per contestant	
6	Software		MS-Office 2007	Copy		Installed upon request
7	Laser printer		For A4 printing	Each	1 per contestant	For printing reports
8	Paper		A4	Box	1	For judges

## 7. Evaluation Criteria

No.	Main Items to be Evaluated	Marks
1	Creating Tables & Setting restraints	15
2	Inputting Data	20
3	Creating Forms	40
4	Creating Reports	15
5	Making Queries and Implementing Functions	10
Total		100