Overview
This event recognizes FBLA members who demonstrate that they have acquired entry level skills for understanding database usage and development in business.

This event consists of two parts: an objective test taken at the NLC and a skills production test taken prior to the NLC.

Competencies
The topics listed below are prioritized, listing first the most important content areas of the tests.

Objective Test Competencies
- Data definitions
- Query development
- Table relationships (including those that enforce referential integrity)
- Form development

Production Competencies
- Data entry techniques
- Basic organizational structure and database
- Develop multiple queries
- Set up relational databases
- Edit relationships
- Develop reports including sorting and grouping, inserting graphics, creating headers and footers, and calculating data

Procedures/Tips
- Review the Competitive Events Tips in the front of the book.

Web Site Resources
- http://databases.about.com/od/specificproducts/Database_Design.htm
- http://www.tomjewett.com/dbdesign/dbdesign.php
- http://www.webopedia.com/TERM/D/database_management_system_DBMS.html

Database Design & Applications Sample Questions

1. The rows in a table are called
   a. fields.
   b. events.
   c. columns
   d. records.

2. A ____ is a collection of programs to manage a database for several people.
   a. DBMS
   b. library
   c. designer
   d. group

3. ___ are properties of entities.
   a. Groups
   b. Switchboards
   c. Attributes
   d. Cables

4. ____ and recovery services, which are mechanisms for recovering the database in the event the database is damaged in any way, are among the features that a DBMS should furnish.
   a. Control
   b. Backup
   c. Information
   d. Data

5. The process of making a copy of the database is called a(n) ____ copy.
   a. security
   b. integrity
   c. recovery
   d. backup

6. DBMSs provide security using
   a. views.
   b. All the answers are correct.
   c. encryption.
   d. passwords.

7. Database requirements ___ over time.
   a. are constant
   b. seldom change
   c. remain stable
   d. constantly change

8. ____ transparency in a DDBMS is where users at different sites use and modify copies of a database without knowing that they are copies.
   a. Replication
   b. Object
   c. Fragmentation
   d. Location

9. One of the reasons for archiving is to
   a. improve security.
   b. decrease performance.
   c. improve dictionary integrity.
   d. save disk space.

10. Mainframe DBMS often are accompanied by a separate entity called a ____, which acts as a super catalog.
   a. data dictionary
   b. program
   c. replicator
   d. macro

11. When a table contains information about a person (e.g., name, address, telephone number) in multiple records, this is called:
   a. data backup
   b. data redundancy
   c. data restoration
   d. data verification

12. When data about a person are stored in a table or list in several different rows, the most serious problem is:
   a. data may not be consistent in all records
   b. the difficulty in creating reports
   c. data may be in different fonts and number formats
   d. the records may be of different lengths

13. Which of these is **not** an important restriction for a well-structured table?
   a. Each record should be unique.
   b. Columns must contain consistent data.
   c. Cells must contain single values.
   d. Cell contents must not repeat in a column.

14. Which of the following is **not** true about primary keys?
   a. Primary keys cannot be null.
   b. Primary keys are used in foreign key relationships.
   c. Primary keys must be unique.
   d. Primary keys must be a single attribute.

15. SQL is an abbreviation for
   a. none of the answers are correct
   b. Structured Query Language.
   c. Select Query Language.
   d. Simple Query Language.

16. Which type of join allows unmatched rows to appear in the result of a join operation?
   a. OPEN JOIN
   b. ODD JOIN
   c. OUTER JOIN
   d. INNER JOIN

17. In SQL, the _____ keyword will allow you to select records based on partial values.
   a. WITH
   b. LIKE
   c. PART
   d. FOR

18. Given a condition: WHERE Lname = 'Jones' AND ZIP = 43301
If some ZIP values are equal to 43301, then:
a. some records for 'Jones' will definitely be returned
b. some records for 'Jones' may be returned
c. only the first indexed record in the table is returned
d. no records for 'Jones' will be returned

19. Combining the activities of several individual users and allowing them to share a common database provides _____ benefit in the recording, manipulation and reporting of information.
a. insignificant
b. greater
c. equal
d. lesser

20. <img src="http://www.techfluency.org/esess/Organizations/21/Media/3973.PNG" alt="3973.PNG">
Using the above image, what is the relationship between Book and Author?
a. many-to-one
b. many-to-many
c. one-to-one
d. one-to-many

21. Most students need to complete several courses in order to graduate. Likewise, most courses are taken by many students. This indicates
a. there is a one-to-many relationship between the two.
b. there is a one-to-one relationship between the two.
c. there is a many-to-many relationship between the two.
d. there is a complex multiple relationship between the two.

22. In the diagram above, faculty teach many courses, but if it is also common to have a COURSE taught by several different FACULTY, then the diamond shape **should** reflect a _____ relationship.
a. recursive one-to-many
b. one-to-one
c. many-to-one
d. many-to-many

23. A report requires data to be arranged alphabetically by Lname. Which of these statements will provide that arrangement?
a. SELECT Lname, Fname, Phone FROM Student ARRANGE BY Lname;
b. SELECT Lname, Fname, Phone ORDER BY Lname FROM Student;
c. SELECT Lname, Fname, Phone FROM Student ORDER BY Lname;
d. SELECT Lname, Fname, Phone ARRANGE BY Lname FROM Student;

24. Changing the name of a field in a table (e.g., SSN becomes StudentID) requires that
a. the data in that field must be reentered.
b. reports that previously used the field must be modified.
c. the name of any related fields must also change.
d. the data type of the field must be changed.

25. A report that is based on a parameter query will:
a. first ask for a value that is to be used for the parameter
b. require create/delete permissions by the user
c. run the report and then ask for a value that is to be used for the parameter
d. ask for the name of the parameter

26. When rows are grouped, ____ of output is/are produced for each group.
    a. one line
    b. one or more lines
    c. multiple lines
    d. no lines

27. A null value in a field
    a. is preferred over the use of generic values like: N/A.
    b. increases the accuracy of data stored in the field.
    c. decreases the complexity of most queries using the field.
    d. inevitably leads to questions about what it means.

28. A table that contains duplicate records
    a. probably has no established index.
    b. probably has a weak primary key.
    c. probably has a defective foreign key.
    d. probably has several surrogate keys.

29. A one-to-many relationship between two tables will require that
    a. the table on the 'many' side can have no candidate keys.
    b. a foreign key will be placed on the 'many' side of the relationship.
    c. the table on the 'one' side will have only one field.
    d. no foreign key will be necessary in the relationship.

30. After a table and indexes are in place, new indexes
    a. None of the answers are correct.
    b. can be added.
    c. will not improve performance.
    d. cannot be added.

Database Design & Applications Sample Production Test

Instructions
You have sixty (60) minutes to complete this production test.

A new record store called Music for Less sells new CDs as well as pre-owned CDs. Individuals can trade in their gently used CD's for credit on newly released CDs or other used albums. The store loses business each year because customers come in looking for a particular CD and store clerks cannot quickly locate a CD or even verify if the CD is in stock.

The story owner thinks that a database that tracks inventory will allow the easy look up of any CD by artist, genre, song or title. In that way, clerks can quickly look up the answer to customer questions either on the phone or when they visit the story in person.

Procedure: A new or used CD will be logged into inventory as it is received by Music for Less. All tracks on the CD will be logged as well as the genre, song titles and type of CD. Types of CDs will include compilations, greatest hits, or collection. CD Genres will include rock, pop, R and B, jazz, funk and alternative.

Assumptions:

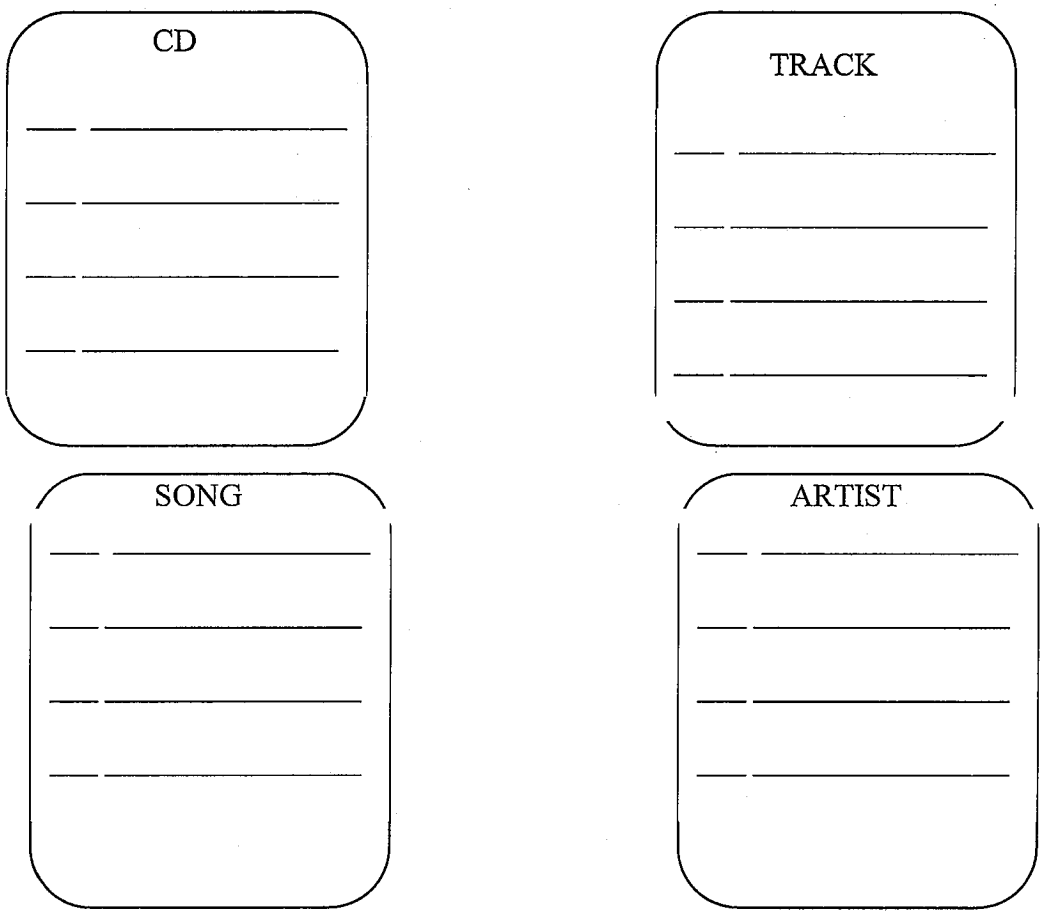
- CDs purchased during the business day will automatically be removed from the database by a separate point-of-sale system to be developed later in the project.
- A track on a CD is the unique combination of an artist singing a particular song on a particular CD.
- A song can be on more than one CD, an artist can sing on more than one CD
- A CD can contain more than one artist
- Each CD, Track, Artist and Song will have a numerical unique identifies

Further Information:

CD Title	Genre	Number in Stock	Type	Songs	Artist
Acoustic Soul	R and B	2	Collection	Intro	India Arie
				Video	India Arie
				Promises	India Arie
				Brown Skin	India Arie
John Mayer	Pop	5	Collection	Waiting on the World to Change	John Mayer
				I Don't Trust Myself	John Mayer
				Belief	John Mayer
				Gravity	John Mayer
				The Heart of Life	John Mayer
The Breakthrough	Soul	10	Collection	No One Will Do	Mary J. Blige
				Enough Cryin	Mary J. Blige
				About You	Mary J. Blige
				Be Without You	Mary J. Blige
Pure Funk	Funk	2	Compilation	Fire	Ohio Players
				Brick House	Commodores
				Car Wash	Rose Royce
				Kung Fu Fighting	Carl Douglas
				Mr. Big Stuff	Jean Knight
Testimony	R and B	7	Collection	These Eyes	India Arie
				The Heart of the Matter	India Arie
				Good Mourning	India Arie
				Private Party	India Arie
				There's Hope	India Arie

Job 1—Object Diagram

Complete the object diagram below. The objects and their attributes can be obtained by using the table and description above. Identify the primary key and foreign key for each object by writing a PK – Primary Key and a FK – Foreign Key to the left of the identified attribute. Some objects may not contain a foreign key.



Job 2—Database and Table Creation

1) Create a new database named CD Inventory and create the Artist, Song, CD and Track tables. Use the information from the entity relationship diagrams above to assist with the creation of the tables. Identify the appropriate data types for each field. Save each table.
2) Establish the relationships between tables.
3) Populate the tables with the information from the table above

Job 3—Songs by a Particular Artist Query

In order to better assist customers who heard a song on the radio and want to purchase the CD on which it appears, sales clerks need to be able to type in a song name and find the Artist and CD on which it appears. In this case, a customer has phoned to find a CD with the song "Brown Skin". Create a query to show the song title, artist name, CD name on which it appears and the number in stock.

1. Create the query described above
2. Run the query and print the results

Job 4

Another customer has dropped by the store to search for a compilation of 70's funk. The customer would like to have a print out of all the songs on a CD that meets this criterion so she can take with her for comparison purposes. Create a query that finds all CD that are compilation of this genre. Display the Name[s] of the CD, all songs and artists on the CD.

1. Create the query described above
2. Run the query and print the results
3. Use the query as the source of a report.
4. Print the resulting report.

Cyber Security Answer Key

1) A	11) B	21) C
2) B	12) D	22) B
3) A	13) A	23) A
4) D	14) B	24) D
5) C	15) B	25) B
6) B	16) B	26) C
7) B	17) B	27) B
8) B	18) D	28) A
9) B	19) A	29) D
10) B	20) C	30) A

Database Design & Application Answer Key

1) D	11) B	21) C
2) A	12) A	22) D
3) C	13) D	23) C
4) B	14) D	24) B
5) D	15) B	25) A
6) B	16) C	26) A
7) D	17) B	27) D
8) D	18) B	28) B
9) D	19) B	29) B
10) A	20) A	30) B

Desktop Publishing Answer Key

1) D	11) A	21) C
2) A	12) A	22) C
3) C	13) C	23) C
4) A	14) C	24) B
5) A	15) B	25) B
6) A	16) B	26) A
7) B	17) B	27) B
8) C	18) D	28) A
9) B	19) B	29) A
10) A	20) C	30) B

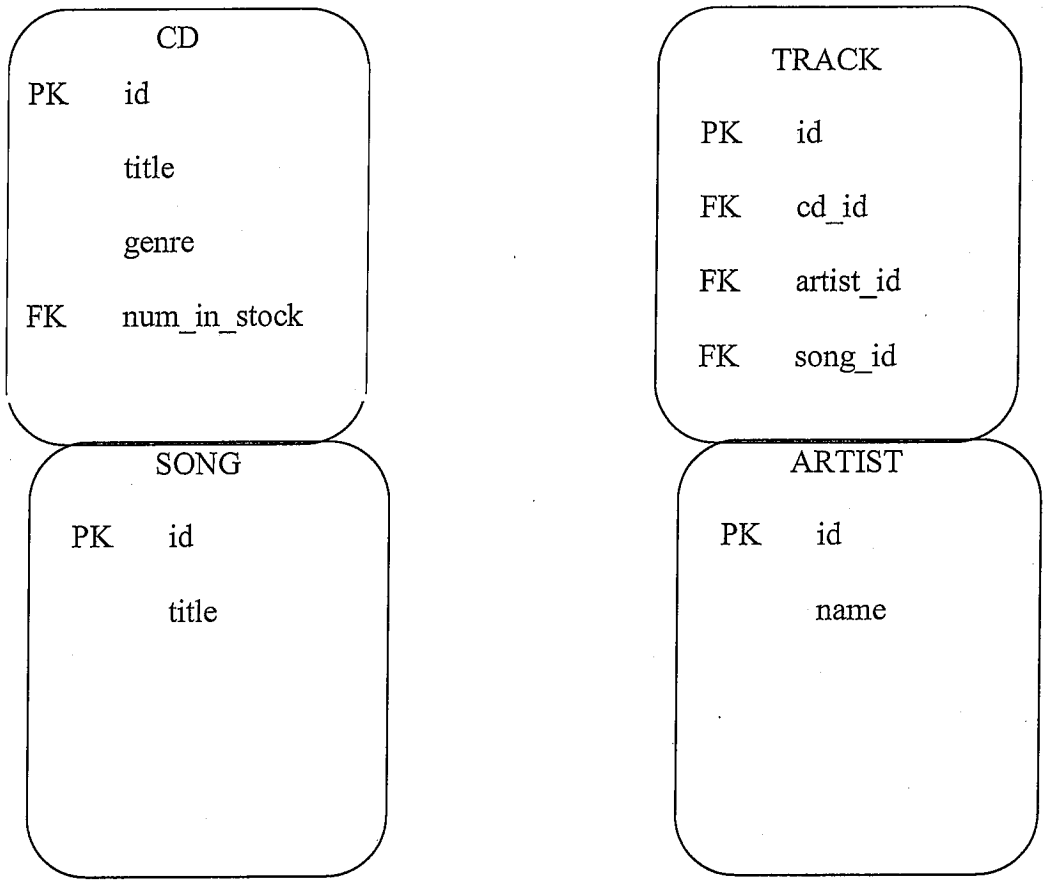
Economics Answer Key

1) C	11) A	21) B
2) D	12) C	22) D
3) A	13) D	23) B
4) C	14) D	24) B
5) D	15) C	25) A
6) D	16) B	26) B
7) C	17) D	27) B
8) B	18) C	28) B
9) D	19) A	29) B
10) A	20) B	30) C

Entrepreneurship Answer Key

1) A	11) A	21) B
2) B	12) C	22) B
3) B	13) B	23) B
4) B	14) A	24) A
5) D	15) D	25) D
6) A	16) C	26) C
7) C	17) B	27) A
8) B	18) A	28) A
9) A	19) B	29) D
10) B	20) C	30) B

Database Design & Applications AK—Job 1



CD

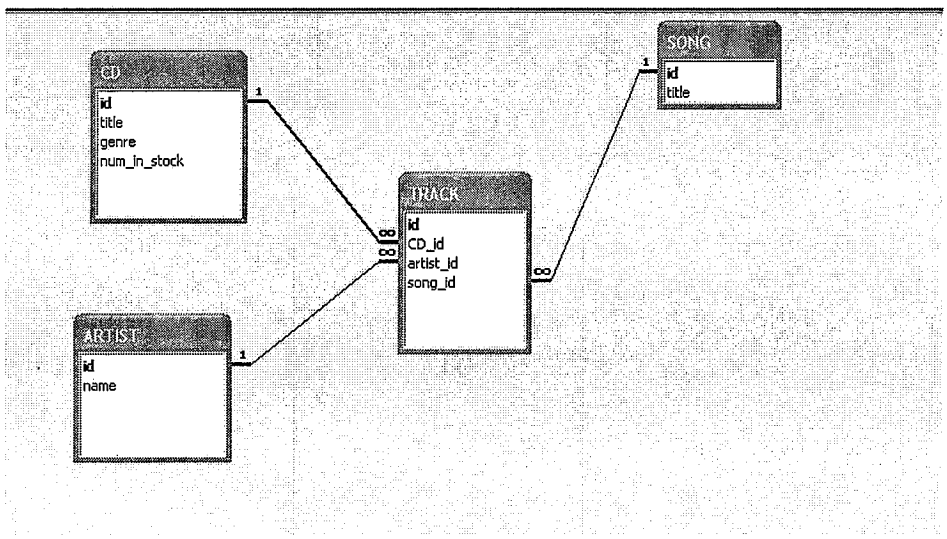
TRACK

SONG

TRACK

ARTIST

TRACK



ARTIST : Table

id	name
1	India Arie
2	John Mayer
3	Ohio Players
4	Commodors
5	Rose Royce
6	Carl Douglas
7	Jean Knight
8	Mary J. Blige
0	

CD : Table

id	title	genre	Type	num_in_stock
10	Acoustic Soul	R and B	collection	2
20	Continuum	Pop	collection	5
30	The Breakthrou	Soul	collection	10
40	Pure Funk	Funk	compilation	2
50	Testimony	R and B	collection	7
0				

SONG : Table

id	title
100	Intro
101	Video
102	Promises
103	Brown Skin
104	Waiting on the World to Change
105	I don't Trust Myself
106	Belief
107	Gravity
108	The Heart of Life
109	No One Will Do
110	Enough Cryin
111	About You
112	Be Without You
113	Fire
114	Brick House
115	Car Wash
116	Kung Fu Fighting
117	Mr. Big Stuff
118	These Eyes
119	The Heart of the Matter
120	Good Mourning
121	Private Party
122	There's Hope
0	

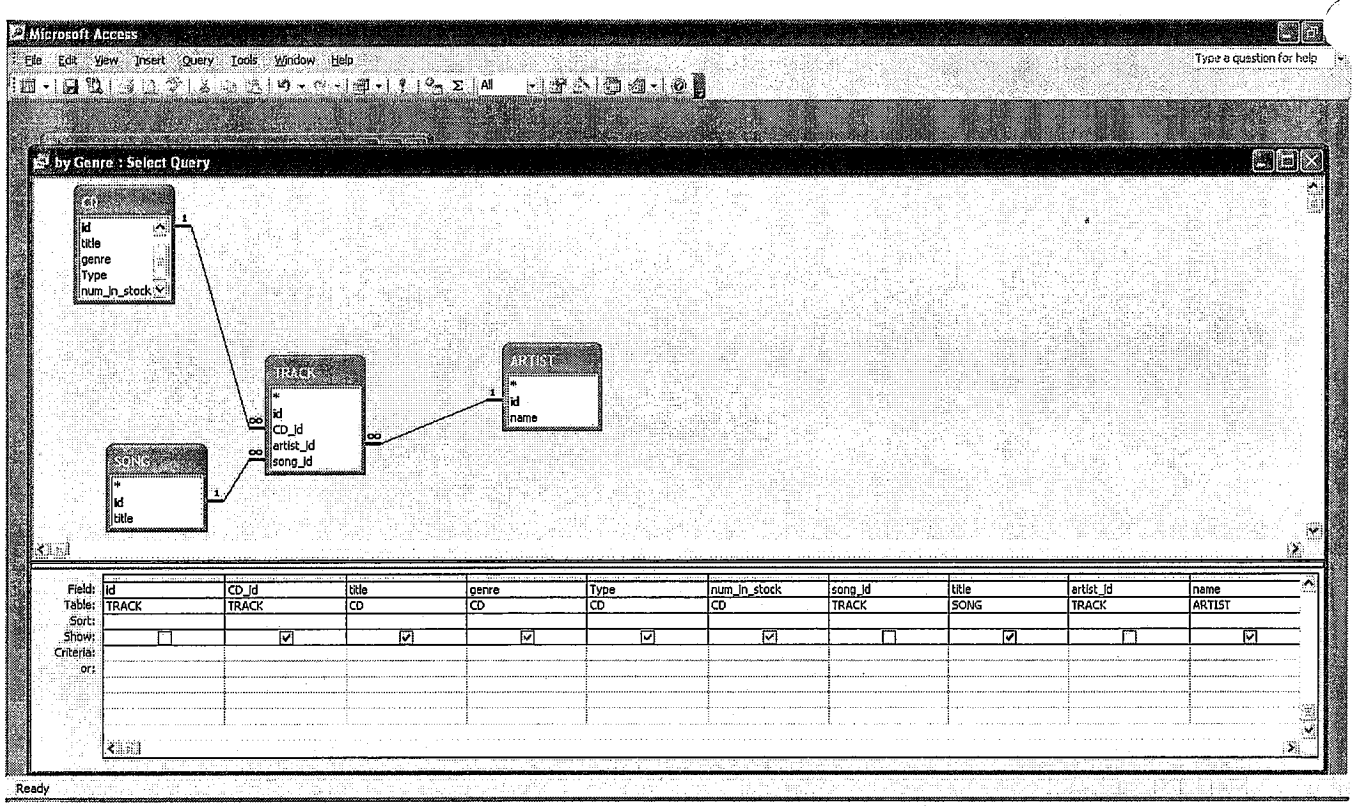
Microsoft Access

File Edit View Insert Format Records Tools Window Help

TRACK : Table

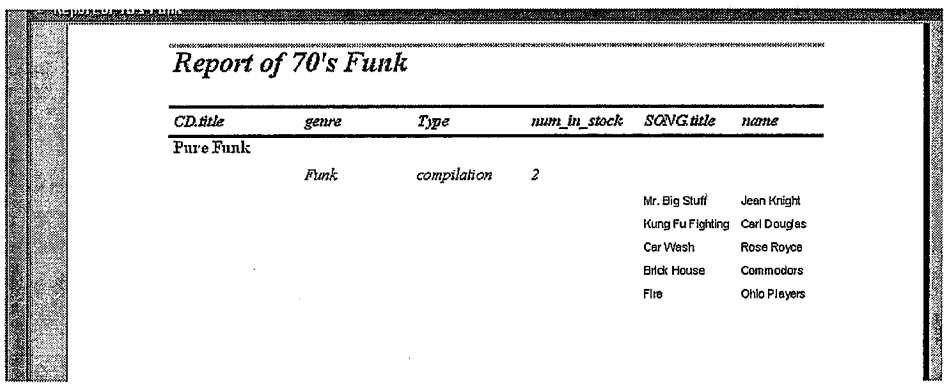
id	CD_id	artist_id	song_id
200	10	1	100
201	10	1	101
203	10	1	102
204	10	1	103
205	20	2	104
206	20	2	105
207	20	2	106
208	20	2	107
209	20	2	108
210	30	8	109
211	30	8	110
212	30	8	111
213	30	8	112
214	40	3	113
215	40	4	114
216	40	5	115
217	40	6	116
218	40	7	117
219	50	1	118
220	50	1	119
221	50	1	120
222	50	1	121
223	50	1	122
0	0	0	0

Record: 1 of 23



by Genre : Select Query

CD_id	CD.title	genre	Type	num_in_stock	SONG.title	name
40	Pure Funk	Funk	compilation	2	Fire	Ohio Players
40	Pure Funk	Funk	compilation	2	Brick House	Commodors
40	Pure Funk	Funk	compilation	2	Car Wash	Rose Royce
40	Pure Funk	Funk	compilation	2	Kung Fu Fighting	Carl Douglas
40	Pure Funk	Funk	compilation	2	Mr. Big Stuff	Jean Knight



Report of 70's Funk

CD.title	*genre*	*Type*	*num_in_stock*	*SONG.title*	*name*
Pure Funk					
	Funk	*compilation*	*2*		
				Mr. Big Stuff	Jean Knight
				Kung Fu Fighting	Carl Douglas
				Car Wash	Rose Royce
				Brick House	Commodors
				Fire	Ohio Players