



**AMERICAN
INTERNATIONAL
UNIVERSITY-
BANGLADESH**

where leaders are created

Introduction to Database

Group Project

On

School management system

Submitted to.....

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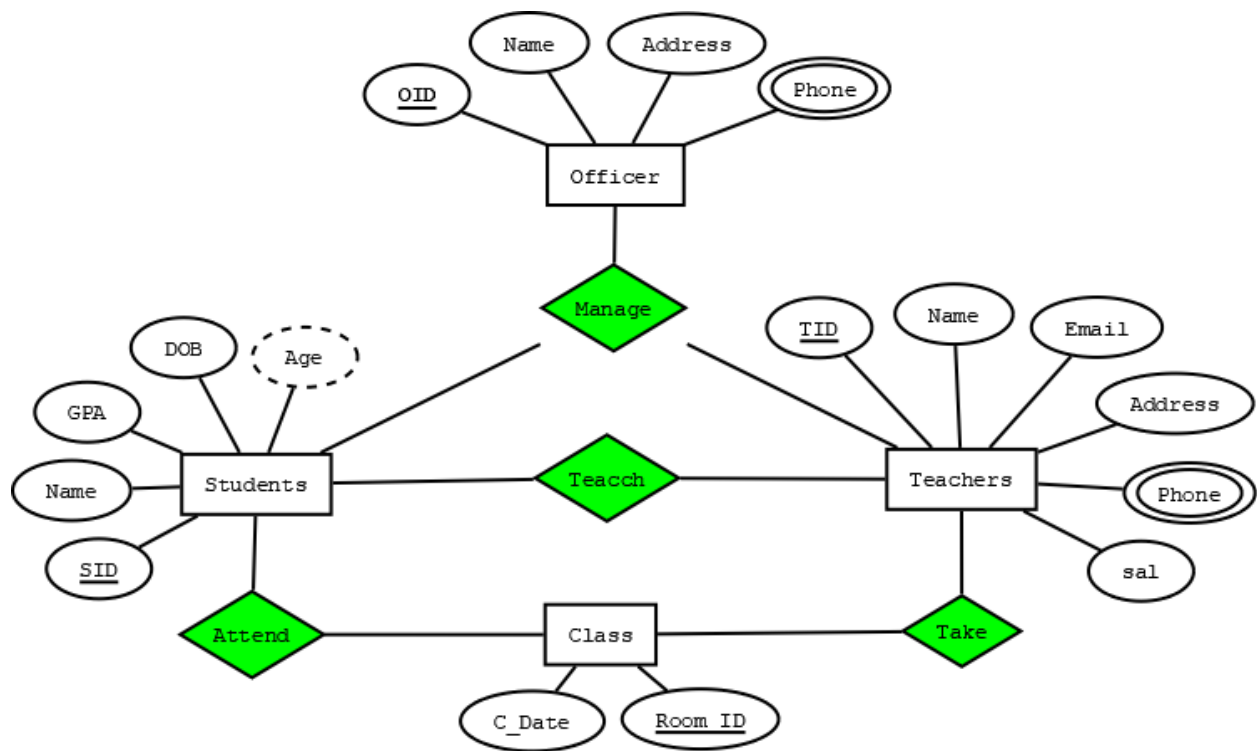
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Project Scenario

School management system:

Officers manage students and teachers. Officers have unique id, name, phone and address. Students go to school. Students have unique student id, name, address and phone number. Teachers teach student. Teachers have unique teacher's id, name, email, address and phone. Teachers take classes. Classes have unique room number and date.

ER Diagram



Normalization

Officer

OID	NAME	ADDRESS	PHONE
1	Abdur , rohman	Rampura	01712345678
2	Rohim , miyah	Motijheel	01723456789
3	Borkot , shah	Badda	01734567891
4	Rohmot , ali	Kuril	01745678901
5	Obaidur , islam	Uttora	01756789012

Teacher

TID	NAME	SAL	EMAIL	ADDRESS	PHONE
100001	Munni , shaha	5000	munni@gmail	Dhanmondi	01767890123
100002	Abdul , alom	4500	alom@gmail	Gulshan	01778901234
100003	Rowshan , ara	4000	ara@gmail	New market	01789012345
100004	Nazrul , islam	3500	isalm@gmail	Farm gate	01790123456
100005	Nipa , ahmed	3000	nipa@gmail	Airport	01710012345

Student

SID	NAME	GPA	DOB	AGE	ADDRESS
01	Emon , rohman	4.94	26-09-12	6	Mohakhali
02	Priam , foyzur	3.15	20-10-09	9	Mohammedrpur
03	Shaiful , alom	2.5	15-5-10	8	Bonani
04	Joshim , haque	4.5	18-6-13	5	Nikunja
05	Mina , akter	3.5	6-2-14	4	Komlapur

Class

ROOM_ID	C_DATE
1001	8-9-18
1002	9-5-18
1003	10-4-18
2001	20-6-18
2002	15-2-18

Normalization: 1NF

Officer

OID	F_NAME	L_NAME	ADDRESS	PHONE
1	Abdur	Rohman	Rampura	01712345678
2	Rohim	Miyah	Motijheel	01723456789
3	Borkot	Shah	Badda	01734567891
4	Rohmot	Ali	Kuril	01745678901
5	Obaidur	Islam	Uttora	01756789012

Teacher

TID	F_NAME	L_NAME	SAL	EMAIL	ADDRESS	PHONE
100001	Munni	Shaha	5000	munni@gmail	Dhanmondi	01767890123
100002	Abdul	Alom	4500	alom@gmail	Gulshan	01778901234
100003	Rowshan	Ara	4000	ara@gmail	New market	01789012345
100004	Nazrul	Islam	3500	isalm@gmail	Farm gate	01790123456
100005	Nipa	Ahmed	3000	nipa@gmail	Airport	01710012345

Student

SID	F_NAME	L_NAME	GPA	DOB	AGE	ADDRESS
01	Emon	Rohman	4.94	26-09-12	6	Mohakhali
02	Foyzur	Priam	3.15	20-10-09	9	Mohammedrpur
03	Shaiful	Alom	2.5	15-5-10	8	Bonani
04	Joshim	Haque	4.5	18-6-13	5	Nikunja
05	Mina	Akter	3.5	6-2-14	4	Komlapur

Class

ROOM_ID	C_DATE
1001	8-9-18
1002	9-5-18
1003	10-4-18
2001	20-6-18
2002	15-2-18

Normalization: 2NF & 3NF

Officer

OID	F_NAME	L_NAME	ADDRESS	PHONE	TID	SID
1	Abdur	Rohman	Rampura	01712345678	100001	01
2	Rohim	Miyah	Motijheel	01723456789	100002	02
3	Borkot	Shah	Badda	01734567891	100003	03
4	Rohmot	Ali	Kuril	01745678901	100004	04
5	Obaidur	Islam	Uttora	01756789012	100005	05

Teacher

TID	F_NAME	L_NAME	SAL	EMAIL	ADDRESS	PHONE	SID
100001	Munni	Shaha	5000	munni@gmail	Dhanmondi	01767890123	O1
100002	Abdul	Alom	4500	alom@gmail	Gulshan	01778901234	O2
100003	Rowshan	Ara	3000	ara@gmail	New market	01789012345	O3
100004	Nazrul	Islam	3500	isalm@gmail	Farm gate	01790123456	O4
100005	Nipa	Ahmed	3000	nipa@gmail	Airport	01710012345	O5

Student

SID	F_NAME	L_NAME	GPA	DOB	AGE	ADDRESS	ROOM_ID
01	Emon	Rohman	4.94	26-09-12	6	Mohakhali	1001
02	Foyzur	Priam	3.15	20-10-09	9	Mohammedrpur	1002
03	Shaiful	Alom	2.5	15-5-10	8	Bonani	1003
04	Joshim	Haque	4.5	18-6-13	5	Nikunja	2001
05	Mina	Akter	3.5	6-2-14	4	Komlapur	2002

Class

ROOM_ID	C_DATE
1001	8-9-18
1002	9-5-18
1003	10-4-18
2001	20-6-18
2002	15-2-18

Class_info

C_Info	TID	ROOM
96	100001	1001
97	100002	1002
98	100005	1003
99	100004	2001
100	100005	2002

Table creation

SQL Commands

127.0.0.1:8080/apex/f?p=4500:1003:1340806636529642::NO::

ORACLE Database Express Edition

User: SYSTEM

Home > SQL > SQL Commands

☒ Autocommit Display 100000 Save Run

desc class

Results Explain Describe Saved SQL History

Object Type TABLE Object CLASS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CLASS	ROOM_ID	Number	-	20	0	1	-	-	-
	C_DATE	Date	7	-	-	-	✓	-	-

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Application Express 2.1.0.00.39
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SQL Commands

127.0.0.1:8080/apex/f?p=4500:1003:3193957486294141::NO::

ORACLE Database Express Edition

User: SYSTEM

Home > SQL > SQL Commands

☒ Autocommit Display 10 Save Run

desc student

Results Explain Describe Saved SQL History

Object Type TABLE Object STUDENT

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUDENT	SID	Number	-	20	0	1	-	-	-
	F_NAME	Varchar2	20	-	-	-	-	-	-
	L_NAME	Varchar2	20	-	-	-	-	-	-
	GPA	Number	-	5	3	-	✓	-	-
	DOB	Date	7	-	-	-	✓	-	-
	AGE	Number	-	3	0	-	✓	-	-
	ADDRESS	Varchar2	20	-	-	-	✓	-	-
	ROOM_ID	Number	-	20	0	-	✓	-	-

1 - 8

Application Express 2.1.0.00.39

Table creation

SQL Commands

127.0.0.1:8080/apex/f?p=4500:1003:3193957486294141::NO::

ORACLE Database Express Edition

User: SYSTEM

Home > SQL > SQL Commands

☒ Autocommit Display 10 Save Run

desc teacher|

Results Explain Describe Saved SQL History

Object Type TABLE Object TEACHER

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
TEACHER	TID	Number	-	20	0	1	-	-	-
	F_NAME	Varchar2	20	-	-	-	-	-	-
	L_NAME	Varchar2	20	-	-	-	-	-	-
	SAL	Number	-	20	0	-	✓	-	-
	EMAIL	Varchar2	20	-	-	-	✓	-	-
	ADDRESS	Varchar2	20	-	-	-	✓	-	-
	PHONE	Number	-	11	0	-	✓	-	-
	SID	Number	-	20	0	-	✓	-	-

1 - 8

Application Express 2.1.0.00.30

SQL Commands

127.0.0.1:8080/apex/f?p=4500:1003:3193957486294141::NO::

ORACLE Database Express Edition

User: SYSTEM

Home > SQL > SQL Commands

☒ Autocommit Display 10 Save Run

desc Officer|

Results Explain Describe Saved SQL History

Object Type TABLE Object OFFICER

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
OFFICER	OID	Number	-	20	0	1	-	-	-
	F_NAME	Varchar2	20	-	-	-	-	-	-
	L_NAME	Varchar2	20	-	-	-	-	-	-
	ADDRESS	Varchar2	20	-	-	-	✓	-	-
	PHONE	Number	-	11	0	-	✓	-	-
	TID	Number	-	20	0	-	✓	-	-
	SID	Number	-	20	0	-	✓	-	-

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Language: en-us

Application Express 2.1.0.00.30
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Table creation

SQL Commands

127.0.0.1:8080/apex/f?p=4500:1003:3193957486294141::NO::

ORACLE Database Express Edition

User: SYSTEM

Home Logout Help

Home > SQL > SQL Commands

☒ Autocommit Display 10 Save Run

desc class_info

Results Explain Describe Saved SQL History

Object Type TABLE Object CLASS_INFO

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CLASS_INFO	C_INFO	Number	-	20	0	1	-	-	-
	TID	Number	-	20	0	-	-	-	-
	ROOM_ID	Number	-	20	0	-	-	-	-

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Application Express 2.1.0.00.39

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Joining

Find the student first name and last name along with room id of that student how read in room no 2002

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
SELECT s.f_name , s.l_name , c.room_id
From student s , class c
WHERE s.room_id = c.room_id
AND
c.room_id LIKE '2002'
```

The query is executed, and the Results window displays the following data:

F_NAME	L_NAME	ROOM_ID
Mina	Akter	2002

1 rows returned in 0.27 seconds

Language: en-us

Application Express 2.1.0.00.39
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Display the first name and room id of that student how have “E” in his/her name

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
SELECT s.f_name , c.room_id
From student s , class c
WHERE s.room_id = c.room_id
AND
s.f_name LIKE '%E%'
```

The query is executed, and the Results window displays the following data:

F_NAME	ROOM_ID
Emon	1001

1 rows returned in 0.02 seconds

Language: en-us

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Joining

Display the first name and room id of all students

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
SELECT s.f_name , c.room_id
From student s , class c
WHERE s.room_id = c.room_id
```

The query is executed, and the Results tab displays the following data:

F_NAME	ROOM_ID
Emon	1001
Foyzur	1002
Shaiful	1003
Joshim	2001
Mina	2002

5 rows returned in 0.02 seconds. A CSV Export link is available.

Language: en-us Application Express 2.1.0.00.39 Copyright © 1999, 2009, Oracle. All rights reserved.

Display the first name and room id of the student how will attend class on 10-4-18

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
SELECT s.f_name , c.room_id
From student s , class c
WHERE s.room_id = c.room_id
AND
c.c_date LIKE '10-apr-18'
```

The query is executed, and the Results tab displays the message: no data found.

Language: en-us Application Express 2.1.0.00.39 Copyright © 1999, 2009, Oracle. All rights reserved.

Sub query

Display the student first name, last name along with his or her GPA who have the lowest GPA.

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
SELECT f_name , l_name , gpa
FROM student
WHERE gpa = ( SELECT min(gpa) FROM student);
```

The query is executed, and the results are displayed in a table:

F_NAME	L_NAME	GPA
Shafiq	Alom	2.5

1 rows returned in 0.13 seconds

Language: en-us

Write a query to find the student id of the student who have a higher GPA then the student whose last name is 'PRIAM'.

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
SELECT sid
FROM student
WHERE gpa > ( SELECT gpa
FROM student
WHERE l_name='PRIAM');
```

The query is executed, and the results are displayed as "no data found".

Language: en-us

Sub query

Display the student first and last name who is smaller than 'PRIAM'

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
SELECT f_name , l_name
FROM student
WHERE age > ( SELECT age
              FROM student
              WHERE f_name='PRIAM')
```

The query is executed, and the Results tab shows "no data found".

Language: en-us Application Express 2.1.0.00.39 Copyright © 1999, 2009, Oracle. All rights reserved.

Find the sid of the student who have the highest GPA.

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
SELECT SID
FROM student
WHERE GPA = ( SELECT max(GPA)
              FROM student)
```

The query is executed, and the Results tab shows the following result:

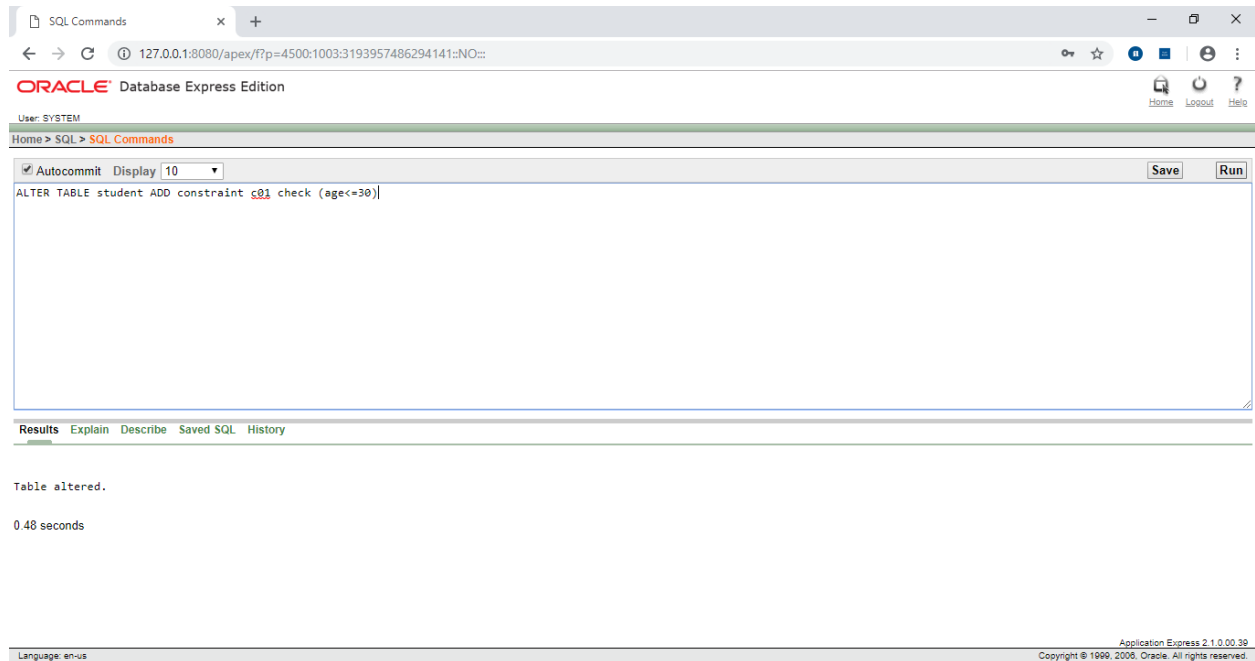
SID
1

1 rows returned in 0.00 seconds CSV Export

Language: en-us Application Express 2.1.0.00.39 Copyright © 1999, 2009, Oracle. All rights reserved.

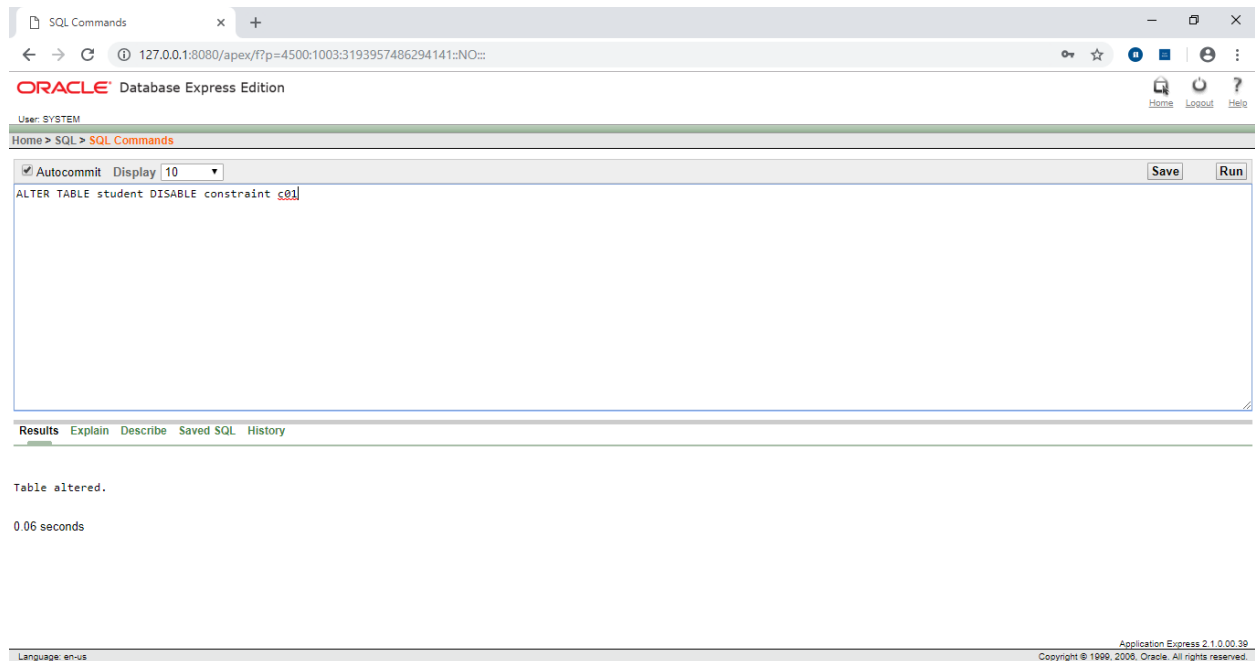
Constraint

Add Constraint:



The screenshot shows the Oracle Database Express Edition interface. The browser address bar displays the URL `127.0.0.1:8080/apex/?p=4500:1003:3193957486294141:NO::`. The page title is "ORACLE Database Express Edition". The user is logged in as "SYSTEM". The breadcrumb navigation shows "Home > SQL > SQL Commands". The "Autocommit" checkbox is checked, and the "Display" dropdown is set to "10". The SQL command entered is `ALTER TABLE student ADD constraint c01 check (age<=30)`. The "Save" and "Run" buttons are visible. Below the command area, the "Results" tab is selected, showing the message "Table altered." and the execution time "0.48 seconds". The footer indicates the language is "en-us" and the application version is "Application Express 2.1.0.00.39".

Disable Constraint:



The screenshot shows the Oracle Database Express Edition interface. The browser address bar displays the URL `127.0.0.1:8080/apex/?p=4500:1003:3193957486294141:NO::`. The page title is "ORACLE Database Express Edition". The user is logged in as "SYSTEM". The breadcrumb navigation shows "Home > SQL > SQL Commands". The "Autocommit" checkbox is checked, and the "Display" dropdown is set to "10". The SQL command entered is `ALTER TABLE student DISABLE constraint c01`. The "Save" and "Run" buttons are visible. Below the command area, the "Results" tab is selected, showing the message "Table altered." and the execution time "0.06 seconds". The footer indicates the language is "en-us" and the application version is "Application Express 2.1.0.00.39".

Constraint

Enable Constraint:

The screenshot shows the Oracle Database Express Edition interface. The browser address bar indicates the URL `127.0.0.1:8080/apex/?p=4500:1003:3193957486294141:NO::`. The page title is "ORACLE Database Express Edition". The user is logged in as "SYSTEM". The breadcrumb navigation shows "Home > SQL > SQL Commands". The "Autocommit" checkbox is checked, and the "Display" dropdown is set to "10". The "Save" and "Run" buttons are visible. The SQL command entered is `ALTER TABLE student ENABLE constraint c01`. Below the command, the results show "Table altered." and "0.12 seconds". The footer includes "Language: en-us" and "Application Express 2.1.0.00.39 Copyright © 1999, 2009, Oracle. All rights reserved."

SQL Commands

127.0.0.1:8080/apex/?p=4500:1003:3193957486294141:NO::

ORACLE Database Express Edition

User: SYSTEM

Home > SQL > SQL Commands

☒ Autocommit Display 10 Save Run

ALTER TABLE student ENABLE constraint c01

Results Explain Describe Saved SQL History

Table altered.

0.12 seconds

Language: en-us Application Express 2.1.0.00.39 Copyright © 1999, 2009, Oracle. All rights reserved.

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