

James Valles  
Homework 8  
CSC 453

1. Reading done.

2.

**Trigger must check that CNR and DPT supplied in INSERT command are correct for the supplied CourseID. If not, INSERT should be ignored and application error should be raised.**

```
CREATE TRIGGER enrollmentinsert
INSTEAD OF INSERT ON ENROLLMENT
FOR EACH ROW
```

```
DECLARE courseExist NUMBER;
BEGIN
SELECT count(*)
INTO courseExist
FROM course
WHERE department = :new.Dpt and courseNr = :new.CNR and CID = :new.CID;
```

```
IF courseExist != 0 then
INSERT INTO enrolled (StudentID, CourseID)
VALUES (:new.SID, :new.CID);
ELSE
Raise_Application_Error (-20343, 'Please enter correct Course Number and Department');
end if;
END;
/
```

The screenshot shows the Oracle SQL Developer interface with the following tabs:

- Worksheet**: Contains the trigger definition code.
- Query Builder**: Not currently active.
- Script Output**: Shows the message "Trigger ENROLLMENTINSERT compiled".

The Worksheet tab displays the trigger code:

```
CREATE TRIGGER enrollmentinsert
INSTEAD OF INSERT ON ENROLLMENT
FOR EACH ROW

DECLARE courseExist NUMBER;
BEGIN
SELECT count(*)
INTO courseExist
FROM course
WHERE department = :new.Dpt and courseNr = :new.CNR and CID = :new.CID;

IF courseExist != 0 then
INSERT INTO enrolled (StudentID, CourseID)
VALUES (:new.SID, :new.CID);
ELSE
Raise_Application_Error (-20343, 'Please enter correct Course Number and Department');
end if;
END;
/
```

The Script Output tab shows the result of the compilation:

```
Trigger ENROLLMENTINSERT compiled
```

Testing, with course number (226) and Department 'GGM' that doesn't exist with CID 8772. Raises application errors in both tests. Then, I test correct CNR, DPT values 206 and 'GAM' for CID 8772 and insert is accepted.

The figure consists of four separate windows of the Oracle SQL Developer interface, each showing a different step in a database operation:

- Top Left:** Shows a failed insert attempt. The query is:
 

```
INSERT INTO enrollment
VALUES(11035, 'Winter', 8772, 226, 'GAM');
```

 The output shows an error message:
 

```
Error starting at line : 1 in command -
INSERT INTO enrollment
VALUES(11035, 'Winter', 8772, 226, 'GAM')
Error report -
ORA-20343: Please enter correct Course Number and Department
ORA-06512: at "JVALLES1.ENROLLMENTINSERT", line 12
ORA-04088: error during execution of trigger 'JVALLES1.ENROLLMENTINSERT'
```
- Top Right:** Shows a successful insert attempt with correct values. The query is:
 

```
INSERT INTO enrollment
VALUES(11035, 'Winter', 8772, 206, 'GGM');
```

 The output shows a success message:
 

```
Error starting at line : 1 in command -
INSERT INTO enrollment
VALUES(11035, 'Winter', 8772, 206, 'GGM')
Error report -
ORA-20343: Please enter correct Course Number and Department
ORA-06512: at "JVALLES1.ENROLLMENTINSERT", line 12
ORA-04088: error during execution of trigger 'JVALLES1.ENROLLMENTINSERT'
```
- Bottom Left:** Shows a successful insert attempt with correct values. The query is:
 

```
INSERT INTO enrollment
VALUES(11035, 'Winter', 8772, 206, 'GAM');
```

 The output shows a success message:
 

```
1 row inserted.
```
- Bottom Right:** Shows the resulting data in the ENROLLMENT table. The table has columns SID, LNAME, CID, CNR, and DPT. One row is present:
 

	SID	LNAME	CID	CNR	DPT
1	11035	Winter	8772	206	GAM

3.

Create a view with check option that enforces 1) if we insert new group with president, insert rejected as president of group has to be a member 2) updates to presidentid rejected if president not in group

```
CREATE OR REPLACE VIEW v_studentgroup AS
SELECT *
FROM studentgroup sg
WHERE presidentid IN
(SELECT studentid FROM memberof mo WHERE sg.GID = mo.GroupID)
WITH CHECK OPTION;
```

JVALLES > STUDENTGROUP >

Worksheet    Query Builder

```
CREATE OR REPLACE VIEW v_studentgroup AS
SELECT *
FROM studentgroup sg
WHERE presidentid IN
(SELECT studentid FROM memberof mo WHERE sg.GID = mo.GroupID)
WITH CHECK OPTION;
```

Script Output >

Task completed in 0.223 seconds

View V\_STUDENTGROUP created.

JVALLES > V\_STUDENTGROUP >

Columns Data Grants Dependencies Details Triggers SQL Errors

GID NAME PRESIDENTID FOUNDED

1	221 HerCDM	93321	2003
2	42 DeFrag	32105	2004

JVALLES > MEMBEROF >

Columns Data Model Constraints Grants Statistics Triggers Flashback Dependencies

STUDENTID GROUPID JOINED

1	75234	42	2015
2	11035	221	2016
3	93321	221	2015
4	75234	2	2015
5	32105	42	2017
6	32105	2	2018
7	32105	221	2017
8	32105	101	2017
9	58992	101	1999

JVALLES > STUDENTGROUP >

Columns Data Model Constraints Grants Statistics Triggers Flashback Dependencies

GID NAME PRESIDENTID FOUNDED

1	2 Computer Science Society	58992	1999
2	101 Robotics Society	(null)	1998
3	221 HerCDM	93321	2003
4	42 DeFrag	32105	2004

**Test #1: Insert a new group into v\_studentgroup with presidentid (who isn't a member of the group), rejected by check option violation.**

The screenshot shows the Oracle SQL Developer interface. The top window is titled 'JVALLES' and contains a query builder with the following SQL code:

```
insert into v_studentgroup(GID, Name, PresidentID, Founded)
values (342, 'Database Lovers', 32105, 2018);
```

The bottom window is titled 'Script Output' and displays the error message:

```
Error starting at line : 1 in command -
insert into v_studentgroup(GID, Name, PresidentID, Founded)
values (342, 'Database Lovers', 32105, 2018)
Error report -
ORA-01402: view WITH CHECK OPTION where-clause violation
```

**Test #2: Update group's president with another student, who is a member of group. Not rejected.**

The screenshot shows the Oracle SQL Developer interface. The top window is titled 'JVALLES' and contains a query builder with the following SQL code:

```
UPDATE v_studentgroup
SET PRESIDENTID = 75234
WHERE GID = 42;
```

The bottom window is titled 'Script Output' and displays the confirmation message:

```
1 row updated.
```

Below these windows is a table viewer titled 'V\_STUDENTGROUP'. It shows two rows of data:

GID	NAME	PRESIDENTID	FOUNDED
1	221HerCDM	93321	2003
2	42 DeFrag	75234	2004

Further down, another table viewer titled 'STUDENTGROUP' shows four rows of data:

GID	NAME	PRESIDENTID	FOUNDED
1	2 Computer Science Society	58992	1999
2	101 Robotics Society	(null)	1998
3	221HerCDM	93321	2003
4	42 DeFrag	75234	2004

**Test #3 Update group's president with another student, who is a NOT member of group.  
Rejected.**

JVALLES > V\_STUDENTGROUP

Worksheet Query Builder

```
UPDATE v_studentgroup
SET PRESIDENTID = 8871
WHERE GID = 42;
```

Script Output

Error starting at line : 1 in command -  
UPDATE v\_studentgroup  
SET PRESIDENTID = 8871  
WHERE GID = 42  
Error report -  
ORA-01402: view WITH CHECK OPTION where-clause violation

**Test #4 Changing 101 to 11035(reject) and 32105(accepted). Both changes end up failing. In fact, all updates on groups where the President is not a member of the group they are president of initially is rejected. I tried updating group 2 (Computer Science) as well and the changes were rejected, because the intital president 58992 is not a member of group 2. As a result, both groups are missing from the view and any updates are rejected.**

JVALLES > V\_STUDENTGROUP

Worksheet Query Builder

```
UPDATE v_studentgroup
SET PRESIDENTID = 11035
WHERE GID = 101;
```

Script Output

Task completed in 0.09 se

0 rows updated.

JVALLES > V\_STUDENTGROUP

Worksheet Query Builder

```
UPDATE v_studentgroup
SET PRESIDENTID = 11035
WHERE GID = 101;
```

Script Output

Task completed in 0.09 se

0 rows updated.

JVALLES > V\_STUDENTGROUP

Worksheet Query Builder

```
UPDATE v_studentgroup
SET PRESIDENTID = 75234
WHERE GID = 2;
```

Script Output

Task completed in 0.09 se

0 rows updated.

JVALLES > STUDENTGROUP

Columns Data Model Constraints Grants Statistics Triggers Flashback

GID NAME PRESIDENTID FOUNDED

GID	NAME	PRESIDENTID	FOUNDED
1	2 Computer Science Society	58992	1999
2	101 Robotics Society	(null)	1998
3	221 HerCDM	93321	2003
4	42 DeFrag	75234	2004

**Test #5, when I update both GID 2 and 101 with presidentid(s) that are members of the respective groups, the rule functions as expected. All groups now show in the view v\_studentgroup and all updates works as expected.**

Two windows side-by-side:

- V\_STUDENTGROUP:** Shows a view with columns GID, NAME, PRESIDENTID, and FOUNDED. Data rows: 1 (GID 2, Computer Science Society, 75234, 1999), 2 (GID 101, Robotics Society, 32105, 1998), 3 (GID 221, HerCDM, 93321, 2003), 4 (GID 42, DeFrag, 75234, 2004).
- Underlying Table:** Shows the same data in a table with columns GID, NAME, PRESIDENTID, and FOUNDED. Data rows: 1 (GID 2, Computer Science Society, 75234, 1999), 2 (GID 101, Robotics Society, 32105, 1998), 3 (GID 221, HerCDM, 93321, 2003), 4 (GID 42, DeFrag, 75234, 2004).

**MEMBEROF:** Shows a view with columns STUDENTID, GROUPID, and JOINED. Data rows:

STUDENTID	GROUPID	JOINED
1	75234	42
2	11035	221
3	93321	221
4	75234	2
5	32105	42
6	32105	2
7	32105	221
8	32105	101
9	58992	101

Three sessions in a grid:

- Session 1:** Updates GID 101 to PRESIDENTID 58992. Script output: "1 row updated."
- Session 2:** Updates GID 2 to PRESIDENTID 32105. Script output: "1 row updated."
- Session 3:** Attempts to update GID 2 to PRESIDENTID 8871, which fails due to a view WITH CHECK OPTION constraint. Error message: "ORA-01402: view WITH CHECK OPTION where-clause violation".

JVALLES > V\_STUDENTGROUP

Columns Data Grants Dependencies Details Triggers SQL Errors

Sort.. Filter:

GID	NAME	PRESIDENTID	FOUNDED
1	2 Computer Science Society	32105	1999
2	101 Robotics Society	58992	1998
3	221 HerCDM	93321	2003
4	42 DeFrag	75234	2004

JVALLES > STUDENTGROUP

Columns Data Model Constraints Grants Statistics Triggers Flashback Dependencies

Sort.. Filter:

GID	NAME	PRESIDENTID	FOUNDED
1	2 Computer Science Society	32105	1999
2	101 Robotics Society	58992	1998
3	221 HerCDM	93321	2003
4	42 DeFrag	75234	2004

4.

Create a view which is like the student table, but instead of the Started Column, it should contain Year, which is the year the student is in . ie. 2018 is year 1.

a.

JVALLES > V\_STUDENT

0.153 seconds

Worksheet Query Builder

```
CREATE OR REPLACE FORCE VIEW v_student(LastName, FirstName, SID, SSN, Career, Program, City, Year) AS
  SELECT LastName, FirstName, SID, SSN, Career, Program, City, ((extract(year from sysdate) - started) + 1)
  FROM student;
```

Script Output > Query Result >

Task completed in 0.153 seconds

View V\_STUDENT created.

JVALLES > V\_STUDENT

Columns Data Grants Dependencies Details Triggers SQL Errors

Sort.. Filter:

	LASTNAME	FIRSTNAME	SID	SSN	CAREER	PROGRAM	CITY	YEAR
1	Brennigan	Marcus	90421	987654321 UGRD	INFO-TECH	Evanston		4
2	Patel	Deepa	14662	(null) GRD	COMP-SCI	Evanston		3
3	Snowdon	Jonathan	8871	123123123 GRD	INFO-SYS	Springfield		2
4	Starck	Jason	19992	789789789 UGRD	INFO-SYS	Springfield		5
5	Johnson	Peter	32105	123456789 UGRD	COMP-SCI	Chicago		2
6	Winter	Abigail	11035	111111111 GRD	PHD	Chicago		3
7	Patel	Prakash	75234	(null) UGRD	COMP-SCI	Chicago		5
8	Snowdon	Jennifer	93321	321321321 GRD	COMP-SCI	Springfield		4
9	Degroff	Jarvis	14998	113311331 GRD	INFO-TECH	Evanston		3
10	Kubik	Dwayne	57923	979797979 UGRD	COMP-SCI	Springfield		1
11	Skelly	Trinity	58992	555222555 GRD	PHD	Springfield		1
12	Krol	Angelo	60973	(null) UGRD	COMP-SCI	Springfield		6
13	Pollard	Joya	39077	(null) GRD	COMP-SCI	Springfield		2

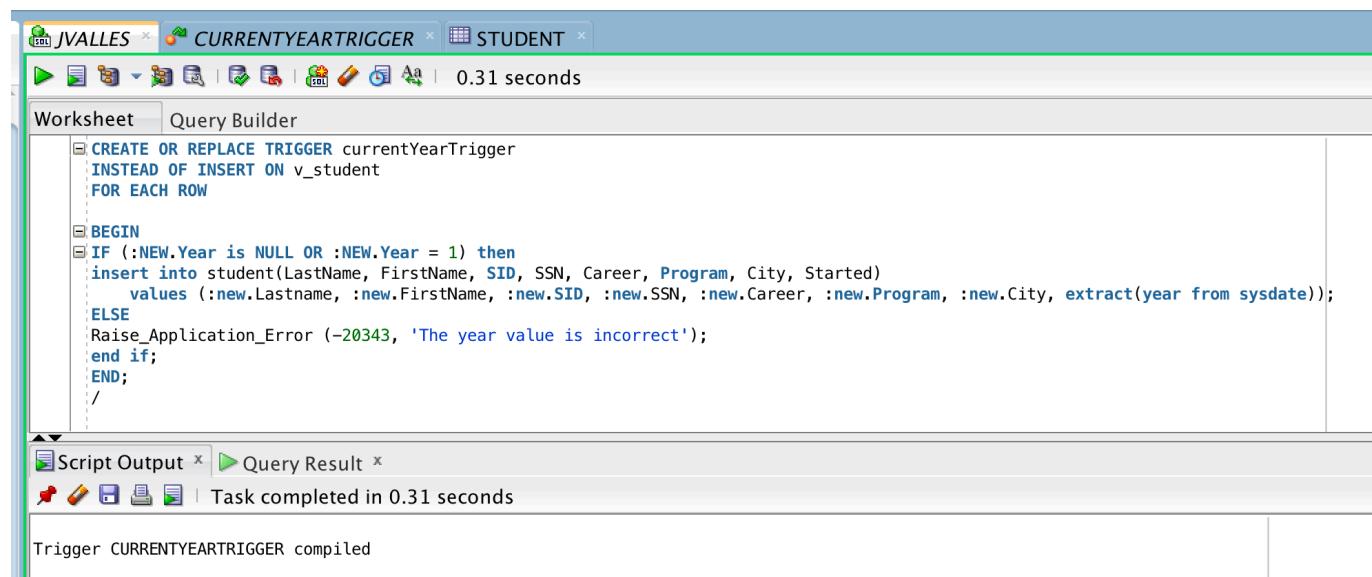
b.

**Create instead trigger handles inserts on view v\_student table. If year is 1 or null, set start value to current year (2018); otherwise, for all other values reject insert and raise application error warning that says year value is incorrect.**

```
CREATE OR REPLACE TRIGGER currentYearTrigger
INSTEAD OF INSERT ON v_student
FOR EACH ROW

BEGIN
IF (:NEW.Year is NULL OR :NEW.Year = 1) then
insert into student(LastName, FirstName, SID, SSN, Career, Program, City, Started)
    values (:new.LastName, :new.FirstName, :new.SID, :new.SSN, :new.Career, :new.Program,
:new.City, extract(year from sysdate));
ELSE
Raise_Application_Error (-20343, 'The year value is incorrect');
end if;
END;
/
```

**Test #1: Inserting new student with Year other than 1 or null.**



The screenshot shows the Oracle SQL Developer interface. The title bar has tabs for 'JVALLES', 'CURRENTYEARTRIGGER', and 'STUDENT'. The main area is a 'Worksheet' tab showing the PL/SQL code for the trigger. The code checks if the inserted year is null or 1; if so, it inserts the row into the 'student' table with the current year from 'sysdate'. Otherwise, it raises an application error. The bottom status bar indicates the task completed in 0.31 seconds.

```
CREATE OR REPLACE TRIGGER currentYearTrigger
INSTEAD OF INSERT ON v_student
FOR EACH ROW

BEGIN
IF (:NEW.Year is NULL OR :NEW.Year = 1) then
insert into student(LastName, FirstName, SID, SSN, Career, Program, City, Started)
    values (:new.LastName, :new.FirstName, :new.SID, :new.SSN, :new.Career, :new.Program,
:new.City, extract(year from sysdate));
ELSE
Raise_Application_Error (-20343, 'The year value is incorrect');
end if;
END;
/
```

JVALLES CURRENTYEARTRIGGER ENROLLED

0.30700001 seconds

Worksheet Query Builder

```
insert into v_student(LastName, FirstName, SID, SSN, Career, Program, City, Year)
values ('Testy', 'Jane', 3333, null, 'GRD', 'COMP-SCI', 'Springfield', 2);
```

Script Output Query Result

Task completed in 0.307 seconds

Error starting at line : 1 in command –  
 insert into v\_student(LastName, FirstName, SID, SSN, Career, Program, City, Year)  
 values ('Testy', 'Jane', 3333, null, 'GRD', 'COMP-SCI', 'Springfield', 2 )  
 Error report –  
 ORA-20343: The year value is incorrect  
 ORA-06512: at "JVALLES1.CURRENTYEARTRIGGER", line 6  
 ORA-04088: error during execution of trigger 'JVALLES1.CURRENTYEARTRIGGER'

### Test #2: Inserting new student with Year null.

JVALLES CURRENTYEARTRIGGER ENROLLED

0.214 seconds

Worksheet Query Builder

```
insert into v_student(LastName, FirstName, SID, SSN, Career, Program, City, Year)
values ('Testy', 'Jane', 3333, null, 'GRD', 'COMP-SCI', 'Springfield', null );
```

Script Output Query Result

Task completed in 0.214 seconds

1 row inserted.

JVALLES CURRENTYEARTRIGGER V\_STUDENT

Columns Data Grants Dependencies Details Triggers SQL Errors

Lastname FirstName SID SSN Career Program City Year

	LASTNAME	FIRSTNAME	SID	SSN	CAREER	PROGRAM	CITY	YEAR
1	Testy	Jane	3333	(null) GRD	COMP-SCI	Springfield	1	
2	Brennigan	Marcus	90421	987654321 UGRD	INFO-TECH	Evanston	4	
3	Patel	Deepa	14662	(null) GRD	COMP-SCI	Evanston	3	
4	Snowdon	Jonathan	8871	123123123 GRD	INFO-SYS	Springfield	2	
5	Starck	Jason	19992	789789789 UGRD	INFO-SYS	Springfield	5	
6	Johnson	Peter	32105	123456789 UGRD	COMP-SCI	Chicago	2	
7	Winter	Abigail	11035	111111111 GRD	PHD	Chicago	3	
8	Patel	Prakash	75234	(null) UGRD	COMP-SCI	Chicago	5	
9	Snowdon	Jennifer	93321	321321321 GRD	COMP-SCI	Springfield	4	
10	Degroff	Jarvis	14998	113311331 GRD	INFO-TECH	Evanston	3	
11	Kubik	Dwayne	57923	979797979 UGRD	COMP-SCI	Springfield	1	
12	Skelly	Trinity	58992	555222555 GRD	PHD	Springfield	1	
13	Krol	Angelo	60973	(null) UGRD	COMP-SCI	Springfield	6	
14	Pollard	Joya	39077	(null) GRD	COMP-SCI	Springfield	2	

JVALLES CURRENTYEARTRIGGER STUDENT

Columns Data Model Constraints Grants Statistics Triggers Flashback Dependencies Details Part

Sort.. Filter:

	LASTNAME	FIRSTNAME	SID	SSN	CAREER	PROGRAM	CITY	STARTED
1	Testy	Jane	3333	(null) GRD	COMP-SCI	Springfield	2018	
2	Brennigan	Marcus	90421	987654321 UGRD	INFO-TECH	Evanston	2015	
3	Patel	Deepa	14662	(null) GRD	COMP-SCI	Evanston	2016	
4	Snowdon	Jonathan	8871	123123123 GRD	INFO-SYS	Springfield	2017	
5	Starck	Jason	19992	789789789 UGRD	INFO-SYS	Springfield	2014	
6	Johnson	Peter	32105	123456789 UGRD	COMP-SCI	Chicago	2017	
7	Winter	Abigail	11035	111111111 GRD	PHD	Chicago	2016	
8	Patel	Prakash	75234	(null) UGRD	COMP-SCI	Chicago	2014	
9	Snowdon	Jennifer	93321	321321321 GRD	COMP-SCI	Springfield	2015	
10	Degroff	Jarvis	14998	113311331 GRD	INFO-TECH	Evanston	2016	
11	Kubik	Dwayne	57923	979797979 UGRD	COMP-SCI	Springfield	2018	
12	Skelly	Trinity	58992	555222555 GRD	PHD	Springfield	2018	
13	Krol	Angelo	60973	(null) UGRD	COMP-SCI	Springfield	2013	
14	Pollard	Joya	39077	(null) GRD	COMP-SCI	Springfield	2017	

### Test #3: Inserting new student with Year 1.

JVALLES CURRENTYEARTRIGGER STUDENT

0.20900001 seconds

Worksheet Query Builder

```
insert into v_student(LastName, FirstName, SID, SSN, Career, Program, City, Year)
values ( 'Smarty', 'Janet', 4444, null, 'GRD', 'COMP-SCI', 'Springfield', 1 );
```

Script Output Query Result

Task completed in 0.209 seconds

1 row inserted.

JVALLES CURRENTYEARTRIGGER V\_STUDENT

Columns Data Grants Dependencies Details Triggers SQL Errors

Sort.. Filter:

	LASTNAME	FIRSTNAME	SID	SSN	CAREER	PROGRAM	CITY	YEAR
1	Testy	Jane	3333	(null) GRD	COMP-SCI	Springfield	1	
2	Smarty	Janet	4444	(null) GRD	COMP-SCI	Springfield	1	
3	Brennigan	Marcus	90421	987654321 UGRD	INFO-TECH	Evanston	4	
4	Patel	Deepa	14662	(null) GRD	COMP-SCI	Evanston	3	
5	Snowdon	Jonathan	8871	123123123 GRD	INFO-SYS	Springfield	2	
6	Starck	Jason	19992	789789789 UGRD	INFO-SYS	Springfield	5	
7	Johnson	Peter	32105	123456789 UGRD	COMP-SCI	Chicago	2	
8	Winter	Abigail	11035	111111111 GRD	PHD	Chicago	3	
9	Patel	Prakash	75234	(null) UGRD	COMP-SCI	Chicago	5	
10	Snowdon	Jennifer	93321	321321321 GRD	COMP-SCI	Springfield	4	
11	Degroff	Jarvis	14998	113311331 GRD	INFO-TECH	Evanston	3	
12	Kubik	Dwayne	57923	979797979 UGRD	COMP-SCI	Springfield	1	
13	Skelly	Trinity	58992	555222555 GRD	PHD	Springfield	1	
14	Krol	Angelo	60973	(null) UGRD	COMP-SCI	Springfield	6	
15	Pollard	Joya	39077	(null) GRD	COMP-SCI	Springfield	2	

JVALLES CURRENTYEARTRIGGER STUDENT

Columns Data Model Constraints Grants Statistics Triggers Flashback Dependencies Details Pa

Sort.. Filter:

	LASTNAME	FIRSTNAME	SID	SSN	CAREER	PROGRAM	CITY	STARTED
1	Testy	Jane	3333	(null) GRD	COMP-SCI	Springfield	2018	
2	Smarty	Janet	4444	(null) GRD	COMP-SCI	Springfield	2018	
3	Brennigan	Marcus	90421	987654321 UGRD	INFO-TECH	Evanston	2015	
4	Patel	Deepa	14662	(null) GRD	COMP-SCI	Evanston	2016	
5	Snowdon	Jonathan	8871	123123123 GRD	INFO-SYS	Springfield	2017	
6	Starck	Jason	19992	789789789 UGRD	INFO-SYS	Springfield	2014	
7	Johnson	Peter	32105	123456789 UGRD	COMP-SCI	Chicago	2017	
8	Winter	Abigail	11035	111111111 GRD	PHD	Chicago	2016	
9	Patel	Prakash	75234	(null) UGRD	COMP-SCI	Chicago	2014	
10	Snowdon	Jennifer	93321	321321321 GRD	COMP-SCI	Springfield	2015	
11	Degroff	Jarvis	14998	113311331 GRD	INFO-TECH	Evanston	2016	
12	Kubik	Dwayne	57923	979797979 UGRD	COMP-SCI	Springfield	2018	
13	Skelly	Trinity	58992	555222555 GRD	PHD	Springfield	2018	
14	Krol	Angelo	60973	(null) UGRD	COMP-SCI	Springfield	2013	
15	Pollard	Joya	39077	(null) GRD	COMP-SCI	Springfield	2017	

C.

**Extend trigger to handle updates. The trigger will calculate new start value of the student and update student table**

```

CREATE OR REPLACE TRIGGER currentYearTrigger
INSTEAD OF INSERT OR UPDATE ON v_student
FOR EACH ROW

BEGIN
IF INSERTING THEN

IF (:NEW.Year is NULL OR :NEW.Year = 1) then
insert into student(LastName, FirstName, SID, SSN, Career, Program, City, Started)
    values (:new.Lastname, :new.FirstName, :new.SID, :new.SSN, :new.Career, :new.Program,
    :new.City, extract(year from sysdate));
ELSE
Raise_Application_Error (-20343, 'The year value is incorrect');
end if;

ELSIF UPDATING THEN

UPDATE student
SET started = (extract(year from sysdate) - :new.Year + 1)
WHERE sid = :new.sid;
end if;
END;
/

```

JVALLES STUDENT

Worksheet Query Builder

```

FOR EACH ROW
BEGIN
IF INSERTING THEN
  IF (:NEW.Year is NULL OR :NEW.Year = 1) then
    insert into student(LastName, FirstName, SID, SSN, Career, Program, City, Started)
      values (:new.LastName, :new.FirstName, :new.SID, :new.SSN, :new.Career, :new.Program, :new.City, extract(year from sysdate));
  ELSE
    Raise_Application_Error (-20343, 'The year value is incorrect');
  end if;

ELSIF UPDATING THEN
  UPDATE student
  SET started = (extract(year from sysdate) - :new.Year + 1)
  WHERE sid = :new.sid;
END IF;
END;
/

```

Script Output | Query Result | Task completed in 0.108 seconds

Trigger CURRENTYEARTRIGGER compiled

**Test #1: Testing that insert trigger still works. Testing value other than 1 or null, rejects.**

JVALLES STUDENT

Worksheet Query Builder

```

insert into v_student(LastName, FirstName, SID, SSN, Career, Program, City, Year)
  values ( 'NewTester', 'James', 77777, null, 'GRD', 'COMP-SCI', 'Springfield', 2 );

```

Script Output | Query Result | Task completed in 0.114 seconds

Error starting at line : 1 in command –  
insert into v\_student(LastName, FirstName, SID, SSN, Career, Program, City, Year)  
 values ( 'NewTester', 'James', 77777, null, 'GRD', 'COMP-SCI', 'Springfield', 2 )  
Error report –  
ORA-20343: The year value is incorrect  
ORA-06512: at "JVALLES1.CURRENTYEARTRIGGER", line 8  
ORA-04088: error during execution of trigger 'JVALLES1.CURRENTYEARTRIGGER'

**Test #2: Testing that insert trigger still works. Testing value 1, accepts insert.**

JVALLES STUDENT

Worksheet Query Builder

```
insert into v_student(LastName, FirstName, SID, SSN, Career, Program, City, Year)
values ('NewTester', 'James', 77777, null, 'GRD', 'COMP-SCI', 'Springfield', 1);
```

Script Output Query Result

Task completed in 0.061 seconds

1 row inserted.

**Test #3: Testing that insert trigger still works. Testing value null, accepts insert.**

JVALLES STUDENT

Worksheet Query Builder

```
insert into v_student(LastName, FirstName, SID, SSN, Career, Program, City, Year)
values ('NewTesting', 'Richard', 67777, null, 'GRD', 'COMP-SCI', 'Springfield', null);
```

Script Output Query Result

Task completed in 0.119 seconds

1 row inserted.

### Student table after inserts

JVALLES STUDENT

Columns Data Model Constraints Grants Statistics Triggers Flashback Dependencies Details

Lastname FirstName SID SSN Career Program City Started

	LASTNAME	FIRSTNAME	SID	SSN	CAREER	PROGRAM	CITY	STARTED
1	Testy	Jane	3333	(null) GRD	COMP-SCI	Springfield	2018	
2	Smarty	Janet	4444	(null) GRD	COMP-SCI	Springfield	2018	
3	NewTesting	Richard	67777	(null) GRD	COMP-SCI	Springfield	2018	
4	NewTester	James	77777	(null) GRD	COMP-SCI	Springfield	2018	
5	Brennigan	Marcus	90421 987654321	UGRD	INFO-TECH	Evanston	2015	
6	Patel	Deepa	14662	(null) GRD	COMP-SCI	Evanston	2016	
7	Snowdon	Jonathan	8871 123123123	GRD	INFO-SYS	Springfield	2011	
8	Starck	Jason	19992 789789789	UGRD	INFO-SYS	Springfield	2014	
9	Johnson	Peter	32105 123456789	UGRD	COMP-SCI	Chicago	2017	
10	Winter	Abigail	11035 111111111	GRD	PHD	Chicago	2016	
11	Patel	Prakash	75234	(null) UGRD	COMP-SCI	Chicago	2014	
12	Snowdon	Jennifer	93321 321321321	GRD	COMP-SCI	Springfield	2015	
13	Degroff	Jarvis	14998 113311331	GRD	INFO-TECH	Evanston	2016	
14	Kubik	Dwayne	57923 979797979	UGRD	COMP-SCI	Springfield	2018	
15	Skelly	Trinity	58992 55522555	GRD	PHD	Springfield	2018	
16	Krol	Angelo	60973	(null) UGRD	COMP-SCI	Springfield	2013	
17	Pollard	Joya	39077	(null) GRD	COMP-SCI	Springfield	2017	

### V\_Student table after inserts

JVALLES > V\_STUDENT

Columns Data Grants Dependencies Details Triggers SQL Errors

Sort.. Filter:

	LASTNAME	FIRSTNAME	SID	SSN	CAREER	PROGRAM	CITY	YEAR
1	Testy	Jane	3333	(null)	GRD	COMP-SCI	Springfield	1
2	Smarty	Janet	4444	(null)	GRD	COMP-SCI	Springfield	1
3	NewTesting	Richard	67777	(null)	GRD	COMP-SCI	Springfield	1
4	NewTester	James	77777	(null)	GRD	COMP-SCI	Springfield	1
5	Brennigan	Marcus	90421	987654321	UGRD	INFO-TECH	Evanston	4
6	Patel	Deepa	14662	(null)	GRD	COMP-SCI	Evanston	3
7	Snowdon	Jonathan	8871	123123123	GRD	INFO-SYS	Springfield	8
8	Starck	Jason	19992	789789789	UGRD	INFO-SYS	Springfield	5
9	Johnson	Peter	32105	123456789	UGRD	COMP-SCI	Chicago	2
10	Winter	Abigail	11035	111111111	GRD	PHD	Chicago	3
11	Patel	Prakash	75234	(null)	UGRD	COMP-SCI	Chicago	5
12	Snowdon	Jennifer	93321	321321321	GRD	COMP-SCI	Springfield	4
13	Degroff	Jarvis	14998	113311331	GRD	INFO-TECH	Evanston	3
14	Kubik	Dwayne	57923	979797979	UGRD	COMP-SCI	Springfield	1
15	Skelly	Trinity	58992	55522555	GRD	PHD	Springfield	1
16	Krol	Angelo	60973	(null)	UGRD	COMP-SCI	Springfield	6
17	Pollard	Joya	39077	(null)	GRD	COMP-SCI	Springfield	2

**Test #4: Update on v\_student. Setting student 6777 year to 4. Updates started year in student table to 2015.**

JVALLES > V\_STUDENT

0.079 seconds

Worksheet Query Builder

```
UPDATE v_student
SET YEAR = 4
WHERE SID = 67777;
```

Script Output > Query Result >

Task completed in 0.079 seconds

1 row updated.

**v\_student and student tables after update**

JVALLES > V\_STUDENT

Columns Data Grants Dependencies Details Triggers SQL Errors

Sort.. Filter:

	LASTNAME	FIRSTNAME	SID	SSN	CAREER	PROGRAM	CITY	YEAR
1	Testy	Jane	3333	(null) GRD	COMP-SCI	Springfield	1	
2	Smarty	Janet	4444	(null) GRD	COMP-SCI	Springfield	1	
3	NewTesting	Richard	67777	(null) GRD	COMP-SCI	Springfield	4	
4	NewTester	James	77777	(null) GRD	COMP-SCI	Springfield	1	
5	Brennigan	Marcus	90421	987654321 UGRD	INFO-TECH	Evanston	4	
6	Patel	Deepa	14662	(null) GRD	COMP-SCI	Evanston	3	
7	Snowdon	Jonathan	8871	123123123 GRD	INFO-SYS	Springfield	8	
8	Starck	Jason	19992	789789789 UGRD	INFO-SYS	Springfield	5	
9	Johnson	Peter	32105	123456789 UGRD	COMP-SCI	Chicago	2	
10	Winter	Abigail	11035	111111111 GRD	PHD	Chicago	3	
11	Patel	Prakash	75234	(null) UGRD	COMP-SCI	Chicago	5	
12	Snowdon	Jennifer	93321	321321321 GRD	COMP-SCI	Springfield	4	

JVALLES > STUDENT

Columns Data Model Constraints Grants Statistics Triggers Flashback Dependencies Details Partitions

Sort.. Filter:

	LASTNAME	FIRSTNAME	SID	SSN	CAREER	PROGRAM	CITY	STARTED
1	Testy	Jane	3333	(null) GRD	COMP-SCI	Springfield	2018	
2	Smarty	Janet	4444	(null) GRD	COMP-SCI	Springfield	2018	
3	NewTesting	Richard	67777	(null) GRD	COMP-SCI	Springfield	2015	
4	NewTester	James	77777	(null) GRD	COMP-SCI	Springfield	2018	
5	Brennigan	Marcus	90421	987654321 UGRD	INFO-TECH	Evanston	2015	
6	Patel	Deepa	14662	(null) GRD	COMP-SCI	Evanston	2016	
7	Snowdon	Jonathan	8871	123123123 GRD	INFO-SYS	Springfield	2011	
8	Starck	Jason	19992	789789789 UGRD	INFO-SYS	Springfield	2014	
9	Johnson	Peter	32105	123456789 UGRD	COMP-SCI	Chicago	2017	
10	Winter	Abigail	11035	111111111 GRD	PHD	Chicago	2016	