**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Name: Class:**

**Assignment No.:7 Batch:**

**Ass.Name:Triggers Date:**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**SET B Database Name: - Student-Marks database**

sybcs=# create table student

sybcs-# (rollno integer primary key,

sybcs(# name varchar(30),

sybcs(# address varchar(30),

sybcs(# class varchar(30));

NOTICE: CREATE TABLE / PRIMARY KEY will create implicit index "student\_pkey" for table "student"

CREATE TABLE

sybcs=# insert into student values (1,'vishal','pimpri','sybcs');

INSERT 0 1

sybcs=# select \* from student;

rollno | name | address | class

--------+-------+--------+------

1 | vishal | pimpri | sybcs

2 | Anup | Nigdi | sybcs

3 | Ashish | pimpri | sybcs

(3 rows)

sybcs=# create table subject

sybcs-# (scode varchar(10) primary key,

sybcs(# sname varchar(10));

NOTICE: CREATE TABLE / PRIMARY KEY will create implicit index "subject\_pkey" for table "subject"

CREATE TABLE

sybcs=# insert into subject values ('C1','DS');

INSERT 0 1

sybcs=# select \* from subject;

scode | sname

-------+-----------

C1 | DS

C2 | DBMS

E1 | DigitalEtc

E2 | Micro

(4 rows)

sybcs=# create table stud\_sub

sybcs-# (rollno integer references student(rollno),

sybcs(# scode varchar(10) references subject(scode),

sybcs(# marks\_scored integer);

CREATE TABLE

sybcs=# insert into stud\_sub values(1,'C1',50);

INSERT 0 1

sybcs=# select \* from stud\_sub;

rollno | scode | marks\_scored

--------+------+-------------

1 | C1 | 50

1 | C2 | 60

1 | E1 | 55

1 | E2 | 58

2 | C1 | 52

2 | C2 | 50

2 | E1 | 70

2 | E2 | 65

3 | C1 | 54

3 | C2 | 55

3 | E1 | 67

3 | E2 | 66

(12 rows)

Delete from stud\_sub where rollno =2;

Insert

Update

R u sure you want to per the record from the table

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**Triggers**

**a)**

sybcs=# create or replace function del\_student()

sybcs-# returns opaque as'

sybcs'# begin

sybcs'# raise notice ''student record is being deleted'';

sybcs'# return new;

sybcs'# end;'

sybcs-# language 'plpgsql';

CREATE FUNCTION

sybcs=# create trigger trig\_del\_student

sybcs-# before delete on student

sybcs-# for each row

sybcs-# execute procedure del\_student();

WARNING: changing return type of function del\_student from "opaque" to "trigger"

CREATE TRIGGER

O/P:-

sybcs=# delete from student where rollno=3;

NOTICE: student record is being deleted

**b)**

sybcs=# create or replace function stud\_marks()

sybcs-# returns opaque as'

sybcs'# begin

sybcs'# if (new.marks\_scored < 10 or new.marks\_scored>100) then

sybcs'# raise exception ''student marks should be between 10 and 100'';

sybcs'# end if;

sybcs'# return new;

sybcs'# end;'

sybcs-# language 'plpgsql';

CREATE FUNCTION

sybcs=# create trigger trig\_stud\_marks

sybcs-# before insert or update on stud\_sub

sybcs-# for each row

sybcs-# execute procedure stud\_marks();

WARNING: changing return type of function stud\_marks from "opaque" to "trigger"

CREATE TRIGGER

O/P :-

sybcs=# insert into stud\_sub values (4,'C1',110);

ERROR: student marks should be between 10 and 100

sybcs=#

sybcs=# update stud\_sub set marks\_scored=08 where rollno=1 and scode='C2';

ERROR: student marks should be between 10 and 100

sybcs=#

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**SET D Database Name :- Railway Reservation database**

railway=# create table train

railway-# (train\_no integer primary key,

railway(# tname varchar(20),

railway(# depart\_time time,

railway(# arrival\_time time,

railway(# source\_stn varchar(20),

railway(# dest\_stn varchar(20),

railway(# no\_of\_res\_bogies int,

railway(# bogie\_capacity int);

NOTICE: CREATE TABLE / PRIMARY KEY will create implicit index "train\_pkey" for table "train"

CREATE TABLE

railway=# insert into train values(101,'shatabdi express', '9:00:00','8:50:00','pune','delhi',10,50);

INSERT 0 1

railway=# select \* from train;

train\_no | tname | depart\_time | arrival\_time | source\_stn | dest\_stn | no\_of\_res\_bogies | bogie\_capacity

----------+--------------------+------------+-------------+-----------+---------+-----------------+---------------

101 | shatabdi express | 09:00:00 | 08:50:00 | pune | delhi | 10 | 50

102 | maharashtra express | 02:00:00 | 01:50:00 | pune | nagpur | 12 | 40

103 | rajadhani express | 06:05:00 | 05:55:00 | mumbai | delhi | 15 | 60

(3 rows)

railway=# create table passenger

railway-# (pid integer primary key,

railway(# pname varchar(20),

railway(# address varchar(20),

railway(# age int,

railway(# gender char);

NOTICE: CREATE TABLE / PRIMARY KEY will create implicit index "passenger\_pkey" for table "passenger"

CREATE TABLE

railway=# insert into passenger values (1,'vishal','pimpri',25,'M');

INSERT 0 1

railway=# select \* from passenger;

pid | pname | address | age | gender

-----+-----------+-----------+----+-------

1 | vishal | pimpri | 25 | M

2 | Amar | dadar | 30 | M

3 | Mr. Jadhav | chinchawad | 40 | M

4 | Atul | nigdi | 25 | M

5 | Ajay | nigdi | 35 | M

(5 rows)

railway=# create table ticket

railway-# (train\_no integer references train(train\_no),

railway(# pid integer references passenger(pid),

railway(# ticket\_no integer,

railway(# bogie\_no int,

railway(# no\_of\_berths int,

railway(# date date,

railway(# ticket\_amt decimal(7,2),

railway(# status char check(status in('w','W','c','C')),

railway(# primary key(train\_no,pid,ticket\_no));

NOTICE: CREATE TABLE / PRIMARY KEY will create implicit index "ticket\_pkey" for table "ticket"

CREATE TABLE

railway=# insert into ticket values(101,4,5001,8,23,'5/13/2009',2000,'c');

INSERT 0 1

railway=# select \* from ticket;

train\_no | pid | ticket\_no | bogie\_no | no\_of\_berths | date | ticket\_amt | status

----------+----+----------+---------+-------------+-----------+-----------+-------

101 | 4 | 5001 | 8 | 23 | 2009-05-13 | 2000.00 | c

102 | 3 | 5002 | 10 | 25 | 2009-05-13 | 15000.00 | w

101 | 1 | 5003 | 12 | 2 | 2009-05-18 | 3000.00 | w

103 | 2 | 5004 | 5 | 15 | 2009-05-18 | 1000.00 | c

102 | 5 | 5005 | 6 | 10 | 2009-05-18 | 2000.00 | w

(5 rows)

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**Triggers**

**a)**

railway=# create or replace function arrive\_depart()

railway-# returns opaque as'

railway'# begin

railway'# if (new.arrival\_time > new.depart\_time) then

railway'# raise exception '' arrival time should be less than departure time'';

railway'# end if;

railway'# return new;

railway'# end;'

railway-# language 'plpgsql';

CREATE FUNCTION

railway=# create trigger trig\_arrive\_depart

railway-# before insert or update on train

railway-# for each row

railway-# execute procedure arrive\_depart();

WARNING: changing return type of function arrive\_depart from "opaque" to "trigger"

CREATE TRIGGER

O/P:-

railway=# insert into train values(105,'azad hind express', '5:55:00','6:05:00','nagpur','pune',15,60);

NOTICE: arrival time should be less than departure time

INSERT 0 0

railway=# update train set depart\_time='01:45:00' where train\_no=102;

NOTICE: arrival time should be less than departure time

UPDATE 0

railway=#

**b)**

railway=# create or replace function c\_status()

railway-# returns opaque as'

railway'# begin

railway'# raise exception''you can not change the status of the ticket'';

railway'# return new;

railway'# end;'

railway-# language 'plpgsql';

CREATE FUNCTION

railway=# create trigger trig\_c\_status

railway-# before update on ticket

railway-# for each row

railway-# execute procedure c\_status();

WARNING: changing return type of function c\_status from "opaque" to "trigger"

CREATE TRIGGER

O/P:-

railway=# update ticket set status='c' where ticket\_no=5002;

ERROR: you can not change the status of the ticket

railway=#

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**SET E Database Name :- Bus Transportation database**

sybcs=# create table route

sybcs-# (rno integer primary key,

sybcs(# source varchar(20),

sybcs(# destination varchar(20),

sybcs(# no\_st integer);

NOTICE: CREATE TABLE / PRIMARY KEY will create implicit index "route\_pkey" for table "route"

CREATE TABLE

sybcs=# insert into route values (1,'pune st','swargate',10);

INSERT 0 1

sybcs=# select \* from route;

rno | source | destination | no\_st

-----+--------+------------+------

1 | pune st | swargate | 10

2 | m.col | pune st | 15

(2 rows)

sybcs=#

sybcs=#

sybcs=# create table bus

sybcs-# (bno integer primary key,

sybcs(# capacity integer not null,

sybcs(# depot\_name varchar(20),

sybcs(# rno integer references route(rno));

NOTICE: CREATE TABLE / PRIMARY KEY will create implicit index "bus\_pkey" for table "bus"

CREATE TABLE

sybcs=# insert into bus values (101,50,'swargate',1);

INSERT 0 1

sybcs=# select \* from bus;

bno | capacity | depot\_name | rno

-----+---------+-----------+----

101 | 50 | swargate | 1

102 | 60 | pune st | 2

103 | 50 | swargate | 1

104 | 60 | pune st | 2

(5 rows)

sybcs=# create table driver

sybcs-# (dno integer primary key,

sybcs(# dname varchar(20),

sybcs(# license\_no integer unique,

sybcs(# address varchar(20),

sybcs(# d\_age integer,

sybcs(# salary float);

NOTICE: CREATE TABLE / PRIMARY KEY will create implicit index "driver\_pkey" for table "driver"

NOTICE: CREATE TABLE / UNIQUE will create implicit index "driver\_license\_no\_key" for table "driver"

CREATE TABLE

sybcs=# insert into driver values (11,'ajay',2001,'pimpri',25,6000);

INSERT 0 1

sybcs=# select \* from driver;

dno | dname | license\_no | address | d\_age | salary

-----+------+-----------+----------+------+-------

11 | ajay | 2001 | pimpri | 25 | 6000

12 | amol | 2002 | chinchwad | 35 | 7000

13 | akash | 2003 | nigdi | 40 | 8000

(3 rows)

sybcs=# create table bus\_driver

sybcs-# (bno integer references bus(bno) on delete cascade,,

sybcs(# dno integer references driver(dno),

sybcs(# date\_of\_duty date,

sybcs(# shift integer check (shift in(1,2)));

CREATE TABLE

sybcs=# insert into bus\_driver values (101,12,'12/11/2013',1);

INSERT 0 1

sybcs=# select \* from bus\_driver;

bno | dno | date\_of\_duty | shift

-----+----+-------------+------

101 | 12 | 2013-12-11 | 1

102 | 13 | 2014-07-15 | 2

103 | 11 | 2013-08-18 | 1

(3 rows)

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**Triggers**

**a)**

sybcs=# create or replace function driver\_age()

sybcs-# returns opaque as'

sybcs'# begin

sybcs'# if (new.d\_age<18 or new.d\_age >50) then

sybcs'# raise exception '' Drivers age should be between 18 and 50'';

sybcs'# end if;

sybcs'# return new;

sybcs'# end;'

sybcs-# language 'plpgsql';

CREATE FUNCTION

sybcs=# create trigger trig\_driver\_age

sybcs-# before insert or update on driver

sybcs-# for each row

sybcs-# execute procedure driver\_age();

WARNING: changing return type of function driver\_age from "opaque" to "trigger"

CREATE TRIGGER

O/p

sybcs=# insert into driver values (14,'ashish',2004,'pimpri',14,5000);

ERROR: Drivers age should be between 18 and 50

sybcs=#

sybcs=# update driver set d\_age=55 where dno=13;

ERROR: Drivers age should be between 18 and 50

sybcs=#

**b)**

sybcs=# create or replace function bus\_capacity()

sybcs-# returns opaque as'

sybcs'# begin

sybcs'# if (old.capacity<10) then

sybcs'# raise exception '' Bus capacity less than 10 is deleted'';

sybcs'# end if;

sybcs'# return new;

sybcs'# end;'

sybcs-# language 'plpgsql';

CREATE FUNCTION

sybcs=# create trigger trig\_bus\_capacity

sybcs-# after delete on bus

sybcs-# for each row

sybcs-# execute procedure bus\_capacity();

WARNING: changing return type of function bus\_capacity from "opaque" to "trigger"

CREATE TRIGGER

O/p

sybcs=# delete from bus where bno=105;

ERROR: Bus capacity less than 10 is deleted

sybcs=#