DBMS Lab8

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QUESTION 1

Minimal FD set:

- {TN,DAY} -> {SRC_SCODE,DST_SCODE}
- {TN,SCODE,DATE} -> {EAT,SAT,SDT}

BCNF Decomposition:

- R(TN,DAY,SRC_SCODE,DST_SCODE)
- R(TN,SCODE,DATE,EAT,SAT,SDT)

QUESTION 2

AVEREAGE LATE TIME FUNCTION:

```
CREATE OR REPLACE FUNCTION AVG_LATE()
RETURNS SETOF AVERAGE AS $AVG_LATE$
DECLARE
SUM INTEGER;
RECORD AVERAGE;
TOTAL INTEGER;
AVG_TIME NUMERIC;
SEC Schedule%ROWTYPE;
RUN Runlog%ROWTYPE;
BEGIN
FOR SEC IN SELECT * FROM Schedule LOOP
        SUM :=0 ;
        TOTAL :=0;
        IF SEC.Scheduled_Arrival_Time IS NOT NULL THEN
```

```
        FOR RUN IN SELECT* FROM Runlog WHERE
        Train_Number=SEC.Train_Number AND
        Station_code=SEC.Station_code LOOP
                IF RUN.Actual_Arrival_Time IS NOT NULL THEN
                        IF RUN.Actual_Arrival_Time
                >SEC.Scheduled_Arrival_Time THEN
                        SUM := SUM + RUN.Actual_Arrival_Time -
                SEC.Scheduled_Arrival_Time; TOTAL:=TOTAL+1;
                        END IF;
                END IF;
        END LOOP;
        RECORD.Train_Number: = SEC.Train_Number;
         RECORD.Station_Code:=SEC.Station_Code;
        IF TOTAL>0 THEN
        AVG_TIME := SUM/TOTAL;
        ELSE
        AVG_TIME := 0;
        END IF;
        RECORD.AVG_TIME :=AVG_TIME;
        RETURN NEXT RECORD;
END IF;
END LOOP;
RETURN;
END $AVG_LATE$ LANGUAGE 'plpgsql';
```

QUESTION 3

Trigger function:

```
CREATE OR REPLACE FUNCTION sales_change()
```

```
RETURNS TRIGGER AS $$
BEGIN
IF TG_OP = 'INSERT' THEN
        UPDATE Item SET Stock=Stock+NEW.Qty WHERE
        Code=NEW.ItemCode;
        RETURN NEW;
ELSIF TG_OP='UPDATE' THEN
        UPDATE Item SET Stock=Stock+NEW.Qty-OLD.Qty WHERE
        Code=NEW.ItemCode;
        RETURN NEW;
ELSIF TG_OP='DELETE' THEN
        UPDATE Item SET Stock=Stock-OLD.Qty WHERE
        Code=NEW.ItemCode;
        RETURN NEW;
END IF;
END $$ LANGUAGE 'plpgsql';
```

Create Trigger:

```
CREATE TRIGGER set_sales
AFTER INSERT OR UPDATE OR DELETE
ON SalesDetails FOR EACH ROW
EXECUTE PROCEDURE sales_change();
```