

עבודה שניה – מסדי נתונים

שאלה 1:

להלן השאילתה של השאלה:

```
select patients.patient_id,patient_name,appointment_time
from patients join appointment
on appointment.doctor_id="+doctorID+"
and patients.patient_id=appointment.patient_id
and appointment.appointment_time>now()
```

בוחן יקר אנא שים לב שהוספנו את קובץ ה java הנדרש.

שאלה 2:

ה-stored procedure שנכתב ב-workbench :

```
CREATE PROCEDURE `updating_actual_time` (IN idPatient INT)
BEGIN
declare appointmentId int default null;
select appointment_id from appointment where patient_id=idPatient
AND abs(TIMEDIFF(now(),appointment_time))
in (select min(abs(TIMEDIFF(now(),appointment_time))) from appointment where
patient_id=idPatient) INTO appointmentId;
INSERT INTO queue (appointment_id,actual_time) VALUES (appointmentId,now());
END
```

ה-stored procedure שעשינו עליו Apply:

```
USE `hmo`;
DROP procedure IF EXISTS `updating_actual_time`;

DELIMITER $$
USE `hmo`$$
CREATE PROCEDURE `updating_actual_time` (IN idPatient INT)
BEGIN
declare appointmentId int default null;
select appointment_id from appointment where patient_id=idPatient
AND abs(TIMEDIFF(now(),appointment_time))
in (select min(abs(TIMEDIFF(now(),appointment_time))) from appointment where
patient_id=idPatient) INTO appointmentId;
INSERT INTO queue (appointment_id,actual_time) VALUES (appointmentId,now());
END$$

DELIMITER ;
```

בוחן יקר אנא שים לב שהוספנו את קובץ ה java הנדרש.

שאלה 3:

ה-View שנכתב ב-workbench :

```
CREATE VIEW `the_ten_patients_who_wait_the_longest_time` AS
SELECT appointment.patient_id
FROM appointment JOIN queue
WHERE appointment.appointment_id = queue.appointment_id
ORDER BY ABS(TIMEDIFF(queue.actual_time,appointment.appointment_time)) DESC
LIMIT 10
```

ה-View שעשינו עליו Apply:

```
USE `hmo`;
CREATE OR REPLACE VIEW `the_ten_patients_who_wait_the_longest_time` AS
SELECT appointment.patient_id
FROM appointment JOIN queue
WHERE appointment.appointment_id = queue.appointment_id
ORDER BY ABS(TIMEDIFF(queue.actual_time,appointment.appointment_time)) DESC
LIMIT 10;
```

שאלה 4:

הטריגר של ההוספה:

ה-Trigger שנכתב ב-workbench :

```
CREATE DEFINER = CURRENT_USER TRIGGER `hmo`.`queue_AFTER_INSERT` AFTER
INSERT ON `queue` FOR EACH ROW
BEGIN
declare appointmentDate DATE;
declare doctorId int default null;
select DATE(appointment_time) from Appointment where
appointment_id=new.appointment_id into appointmentDate;
select doctor_id from Appointment where appointment_id=new.appointment_id into
doctorId;
update Queue_Summary set num_of_patients=num_of_patients+1 where
date=appointmentDate and doctor_id=doctorId;
END
```

ה-Trigger שעשינו עליו Apply :

```
DELIMITER $$
USE `hmo` $$
CREATE DEFINER = CURRENT_USER TRIGGER `hmo`.`queue_AFTER_INSERT` AFTER
INSERT ON `queue` FOR EACH ROW
BEGIN
declare appointmentDate DATE;
declare doctorId int default null;
select DATE(appointment_time) from Appointment where
appointment_id=new.appointment_id into appointmentDate;
select doctor_id from Appointment where appointment_id=new.appointment_id into
doctorId;
update Queue_Summary set num_of_patients=num_of_patients+1 where
date=appointmentDate and doctor_id=doctorId;
END $$
DELIMITER ;
```

הטריגר של ההסרה:

ה-Trigger שנכתב ב-workbench :

```
CREATE DEFINER = CURRENT_USER TRIGGER `hmo`.`queue_BEFORE_DELETE` BEFORE
DELETE ON `queue` FOR EACH ROW
BEGIN
declare appointmentDate DATE;
declare doctorId int default null;
select DATE(appointment_time) from Appointment where
appointment_id=old.appointment_id into appointmentDate;
select doctor_id from Appointment where appointment_id=old.appointment_id and
DATE(appointment_time)=appointmentDate into doctorId;
update Queue_Summary set num_of_patients=num_of_patients-1 where
Queue_Summary.date=appointmentDate and doctor_id=doctorId;
END
```

ה-Trigger שעשינו עליו Apply :

```
DELIMITER $$
USE `hmo`$$
CREATE DEFINER = CURRENT_USER TRIGGER `hmo`.`queue_BEFORE_DELETE` BEFORE
DELETE ON `queue` FOR EACH ROW
BEGIN
declare appointmentDate DATE;
declare doctorId int default null;
select DATE(appointment_time) from Appointment where
appointment_id=old.appointment_id into appointmentDate;
select doctor_id from Appointment where appointment_id=old.appointment_id and
DATE(appointment_time)=appointmentDate into doctorId;
update Queue_Summary set num_of_patients=num_of_patients-1 where
Queue_Summary.date=appointmentDate and doctor_id=doctorId;
END$$
DELIMITER ;
```

הערה:

בוחן יקר אנא שים לב שקראנו לטבלה שלנו "hmo" (=קופת חולים באנגלית) ולכן בשאילתות שאישרנו יש אזכורים למילה זו.

שאלה 5:

א.

```
select doctor_name , salary
from Doctors join Queue_Summary
where data="2020-04-20" and num_of_patients>4;
```

ב. השאילתה מחזירה את כל שמות הרופאים והמשכורת שלהם שעבדו בתאריך ה 20.4.2020 וגם היה להם באותו יום יותר מ-4 חולים.

שאלה 6:

א. המפתחות הם: $\{B,D,C\}$, $\{B,E,C\}$, $\{B,F\}$

ב. רמת הנרמול היא 3-NF