LAPORAN TUTORIAL LAB 3
BASIS DATA

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Basis Data
Semester Ganjil 2022/2023

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1. **[SQL] Soal Nomor 1**
    - **Contoh 1**

```
valerianSalim=# CREATE OR REPLACE FUNCTION SIWANAP.diskon_harga(idkamar VARCHAR(10))
valerianSalim-# RETURNS INTEGER AS
valerianSalim-# $$
valerianSalim$#     DECLARE
valerianSalim$#         harga_awal INTEGER;
valerianSalim$#         harga_diskon INTEGER;
valerianSalim$#     BEGIN
valerianSalim$#         SELECT harga INTO harga_awal
valerianSalim$#         FROM KAMAR
valerianSalim$#         WHERE id_kamar = idkamar;
valerianSalim$#
valerianSalim$#         harga_diskon := (harga_awal*9/10);
valerianSalim$#
valerianSalim$#         UPDATE KAMAR SET harga = harga_diskon
valerianSalim$#         WHERE id_kamar = idkamar;
valerianSalim$#
valerianSalim$#         RETURN harga_diskon;
valerianSalim$#     END;
valerianSalim$# $$
valerianSalim-# LANGUAGE plpgsql;
CREATE FUNCTION
```

    - **Contoh 2**

```
valerianSalim=# SELECT diskon_harga('KA01');
 diskon_harga
--------------
       153000
(1 row)
```

    - **Contoh 3**

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```
valerianSalim=# SELECT diskon_harga(id_kamar)
valerianSalim-# FROM KAMAR;
 diskon_harga
--------------
       153000
       153000
       153000
       153000
       270000
       270000
       270000
       270000
       270000
       630000
       630000
       630000
       630000
       630000
       990000
       990000
       990000
       990000
       990000
       990000
       990000
       990000
       990000
       990000
       990000
      1440000
      1440000
      1440000
      1440000
      1440000
      1440000
      1440000
      1440000
      1440000
      1440000
      2790000
      2790000
      2790000
      2790000
      2790000
       137700
(45 rows)
```

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- **Contoh 4**

```
valerianSalim=# CREATE OR REPLACE FUNCTION diskon_semua_harga()
valerianSalim-# RETURNS void AS
valerianSalim-# $$
valerianSalim$#     DECLARE
valerianSalim$#         temp_row RECORD;
valerianSalim$#         harga_diskon INTEGER;
valerianSalim$#     BEGIN
valerianSalim$#         FOR temp_row IN
valerianSalim$#         SELECT *
valerianSalim$#             FROM KAMAR
valerianSalim$#         LOOP
valerianSalim$#             harga_diskon := (temp_row.harga*9/10);
valerianSalim$#
valerianSalim$#             UPDATE KAMAR SET harga = harga_diskon
valerianSalim$#             WHERE id_kamar = temp_row.id_kamar;
valerianSalim$#         END LOOP;
valerianSalim$#     END;
valerianSalim$# $$
valerianSalim-# LANGUAGE plpgsql;
CREATE FUNCTION
valerianSalim=# SELECT diskon_semua_harga();
 diskon_semua_harga
--------------------


(1 row)
```

- **Contoh 5**

```
valerianSalim=# DROP FUNCTION diskon_harga(idkamar VARCHAR(10));
DROP FUNCTION
```

- **Contoh 6**

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```
valerianSalim=# CREATE OR REPLACE FUNCTION cek_jumlah_shift()
valerianSalim-# RETURNS trigger AS
valerianSalim-# $$
valerianSalim$#     DECLARE
valerianSalim$#         shift_count integer;
valerianSalim$#     BEGIN
valerianSalim$#         IF(TG_OP = 'INSERT') THEN
valerianSalim$#             SELECT COUNT(*) into shift_count
valerianSalim$#             FROM SHIFT_PERAWAT
valerianSalim$#             WHERE id_perawat = NEW.id_perawat
valerianSalim$#             GROUP BY id_perawat;
valerianSalim$#             IF(shift_count ≥ 5) THEN
valerianSalim$#                 RAISE EXCEPTION 'Maaf, perawat tidak boleh memiliki shift melebihi 5';
valerianSalim$#             END IF;
valerianSalim$#             RETURN NEW;
valerianSalim$#         END IF;
valerianSalim$#         END;
valerianSalim$# $$
valerianSalim-# LANGUAGE plpgsql;
CREATE FUNCTION
```

- **Contoh 7**

```
valerianSalim=# CREATE TRIGGER trigger_cek_jumlah_shift
valerianSalim-# BEFORE INSERT ON SHIFT_PERAWAT
valerianSalim-# FOR EACH ROW
valerianSalim-# EXECUTE PROCEDURE cek_jumlah_shift();
CREATE TRIGGER
```

- **Contoh 8**

```
valerianSalim=# INSERT INTO SHIFT_PERAWAT (id_shift_perawat, id_perawat, id_rawat_inap, waktu_mulai, waktu_akhir)
valerianSalim-# VALUES ('SP101', 'PE13', 'RI20', '2020-11-30 00:00', '2020-11-30 12:00');
ERROR:  Maaf, perawat tidak boleh memiliki shift melebihi 5
CONTEXT:  PL/pgSQL function cek_jumlah_shift() line 11 at RAISE
```

```
valerianSalim=# INSERT INTO SHIFT_PERAWAT (id_shift_perawat, id_perawat, id_rawat_inap, waktu_mulai, waktu_akhir)
valerianSalim-# VALUES ('SP101', 'PE11', 'RI20', '2020-11-30 00:00', '2020-11-30 12:00');
INSERT 0 1
```

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2. [SQL] Soal Nomor 2

```
valerianSalim=# CREATE OR REPLACE FUNCTION check_validity()
valerianSalim-# RETURNS trigger AS
valerianSalim-# $$
valerianSalim$#     BEGIN
valerianSalim$#         IF (NEW.tgl_masuk ≥ NEW.tgl_keluar) THEN
valerianSalim$#             RAISE EXCEPTION 'Input tidak valid pastikan bahwa tanggal masuk
sebelum tanggal keluar';
valerianSalim$#         END IF;
valerianSalim$#         RETURN NEW;
valerianSalim$#     END;
valerianSalim$# $$
valerianSalim-# LANGUAGE plpgsql;
CREATE FUNCTION
valerianSalim=# drop trigger trigger_check_validity ON rawat_inap;
DROP TRIGGER
valerianSalim=# CREATE TRIGGER trigger_check_validity
valerianSalim-# BEFORE INSERT ON RAWAT_INAP
valerianSalim-# FOR EACH ROW
valerianSalim-# EXECUTE PROCEDURE check_validity();
CREATE TRIGGER
```

```
valerianSalim=# INSERT INTO RAWAT_INAP VALUES ('RI51', 'KA01', 'PA03', '2022-11-06', '2022-11-08');
INSERT 0 1
valerianSalim=# INSERT INTO RAWAT_INAP VALUES ('RI52', 'KA05', 'PA18', '2022-11-10', '2022-11-08');
ERROR:  Input tidak valid pastikan bahwa tanggal masuk sebelum tanggal keluar
CONTEXT:  PL/pgSQL function check_validity() line 4 at RAISE
```

```
valerianSalim=# INSERT INTO RAWAT_INAP VALUES ('RI53', 'KA01', 'PA38', '2022-11-11', '2022-11-11');
ERROR:  Input tidak valid pastikan bahwa tanggal masuk sebelum tanggal keluar
CONTEXT:  PL/pgSQL function check_validity() line 4 at RAISE
```

```
valerianSalim=# \df
                                  List of functions
 Schema  |        Name        | Result data type | Argument data types | Type
---------+--------------------+------------------+---------------------+------
 siwanap | calculate_cost     | trigger          |                     | func
 siwanap | cek_jumlah_shift   | trigger          |                     | func
 siwanap | check_validity     | trigger          |                     | func
 siwanap | diskon_semua_harga | void             |                     | func
(4 rows)
```

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```
valerianSalim=# \d rawat_inap
                    Table "siwanap.rawat_inap"
    Column     |         Type          | Collation | Nullable | Default
---------------+-----------------------+-----------+----------+---------
 id_rawat_inap | character varying(10) |           | not null |
 id_kamar      | character varying(10) |           | not null |
 id_pasien     | character varying(10) |           | not null |
 tgl_masuk     | date                  |           | not null |
 tgl_keluar    | date                  |           |          |
 jml_biaya     | integer               |           |          |
Indexes:
    "rawat_inap_pkey" PRIMARY KEY, btree (id_rawat_inap)
    "index_tgl_keluar_rawat_inap" btree (tgl_keluar)
Foreign-key constraints:
    "rawat_inap_id_kamar_fkey" FOREIGN KEY (id_kamar) REFERENCES kamar(id_kamar)
    "rawat_inap_id_pasien_fkey" FOREIGN KEY (id_pasien) REFERENCES pasien(id_pasien)
Referenced by:
    TABLE "dokter_rawat_inap" CONSTRAINT "dokter_rawat_inap_id_rawat_inap_fkey" FOREIGN KEY (id_rawat_inap) REFERENCES rawat_inap(id_rawat_inap)
    TABLE "shift_perawat" CONSTRAINT "shift_perawat_id_rawat_inap_fkey" FOREIGN KEY (id_rawat_inap) REFERENCES rawat_inap(id_rawat_inap)
Triggers:
    trigger_check_validity BEFORE INSERT ON rawat_inap FOR EACH ROW EXECUTE FUNCTION check_validity()
```

3. [SQL] Soal Nomor 3

```
valerianSalim=# ALTER TABLE RAWAT_INAP ADD COLUMN jml_biaya INTEGER;
ALTER TABLE
```

```
valerianSalim=# CREATE OR REPLACE FUNCTION calculate_cost()
valerianSalim-# RETURNS trigger AS
valerianSalim-# $$
valerianSalim$#     DECLARE
valerianSalim$#         cost INTEGER;
valerianSalim$#     BEGIN
valerianSalim$#         IF (NEW.tgl_keluar IS NOT NULL) THEN
valerianSalim$#             cost := (NEW.tgl_keluar - NEW.tgl_masuk) * (
valerianSalim$#                 SELECT harga
valerianSalim$#                 FROM KAMAR
valerianSalim$#                 WHERE KAMAR.id_kamar = NEW.id_kamar
valerianSalim$#             );
valerianSalim$#             NEW.jml_biaya := cost;
valerianSalim$#
valerianSalim$#             RETURN NEW;
valerianSalim$#         END IF;
valerianSalim$#     END;
valerianSalim$# $$
valerianSalim-# LANGUAGE plpgsql;
CREATE FUNCTION
```

```
valerianSalim=# CREATE TRIGGER trigger_calculate_cost
valerianSalim-# BEFORE INSERT or UPDATE ON RAWAT_INAP
valerianSalim-# FOR EACH ROW
valerianSalim-# EXECUTE PROCEDURE calculate_cost();
CREATE TRIGGER
```

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```
valerianSalim=# INSERT INTO RAWAT_INAP VALUES ('RI52', 'KA05', 'PA18', '2022-11-10', '2022-11-12');
INSERT 0 1
valerianSalim=# select * from rawat_inap;
 id_rawat_inap | id_kamar | id_pasien | tgl_masuk  | tgl_keluar | jml_biaya
---------------+----------+-----------+------------+------------+-----------
 RI52          | KA05     | PA18      | 2022-11-10 | 2022-11-12 |    275400
 RI04          | KA26     | PA47      | 2020-11-12 | 2020-11-16 |   3564000
 RI07          | KA33     | PA07      | 2021-07-31 | 2021-08-12 |  15552000
 RI10          | KA13     | PA12      | 2020-12-02 | 2020-12-15 |   7371000
 RI11          | KA21     | PA48      | 2021-07-02 | 2021-07-06 |   3564000
 RI12          | KA11     | PA34      | 2020-10-16 | 2020-10-28 |   6804000
 RI13          | KA02     | PA22      | 2022-01-19 | 2022-01-25 |    826200
```

```
valerianSalim=# SELECT * FROM RAWAT_INAP WHERE id_rawat_inap='RI52';
 id_rawat_inap | id_kamar | id_pasien | tgl_masuk  | tgl_keluar | jml_biaya
---------------+----------+-----------+------------+------------+-----------
 RI52          | KA05     | PA18      | 2022-11-10 | 2022-11-12 |    275400
(1 row)
```

```
valerianSalim=# \df
                                  List of functions
 Schema  |        Name        | Result data type | Argument data types | Type
---------+--------------------+------------------+---------------------+------
 siwanap | calculate_cost     | trigger          |                     | func
 siwanap | cek_jumlah_shift   | trigger          |                     | func
 siwanap | check_validity     | trigger          |                     | func
 siwanap | diskon_semua_harga | void             |                     | func
(4 rows)
```

```
valerianSalim=# \d rawat_inap
                Table "siwanap.rawat_inap"
    Column     |         Type          | Collation | Nullable | Default
---------------+-----------------------+-----------+----------+---------
 id_rawat_inap | character varying(10) |           | not null |
 id_kamar      | character varying(10) |           | not null |
 id_pasien     | character varying(10) |           | not null |
 tgl_masuk     | date                  |           | not null |
 tgl_keluar    | date                  |           |          |
 jml_biaya     | integer               |           |          |
Indexes:
    "rawat_inap_pkey" PRIMARY KEY, btree (id_rawat_inap)
    "index_tgl_keluar_rawat_inap" btree (tgl_keluar)
Foreign-key constraints:
    "rawat_inap_id_kamar_fkey" FOREIGN KEY (id_kamar) REFERENCES kamar(id_kamar)
    "rawat_inap_id_pasien_fkey" FOREIGN KEY (id_pasien) REFERENCES pasien(id_pasien)
Referenced by:
    TABLE "dokter_rawat_inap" CONSTRAINT "dokter_rawat_inap_id_rawat_inap_fkey" FOREIGN KEY (id_rawat_inap) REFERENCES rawat_inap(id_rawat_inap)
    TABLE "shift_perawat" CONSTRAINT "shift_perawat_id_rawat_inap_fkey" FOREIGN KEY (id_rawat_inap) REFERENCES rawat_inap(id_rawat_inap)
Triggers:
    trigger_calculate_cost BEFORE INSERT OR UPDATE ON rawat_inap FOR EACH ROW EXECUTE FUNCTION calculate_cost()
    trigger_check_validity BEFORE INSERT ON rawat_inap FOR EACH ROW EXECUTE FUNCTION check_validity()
```