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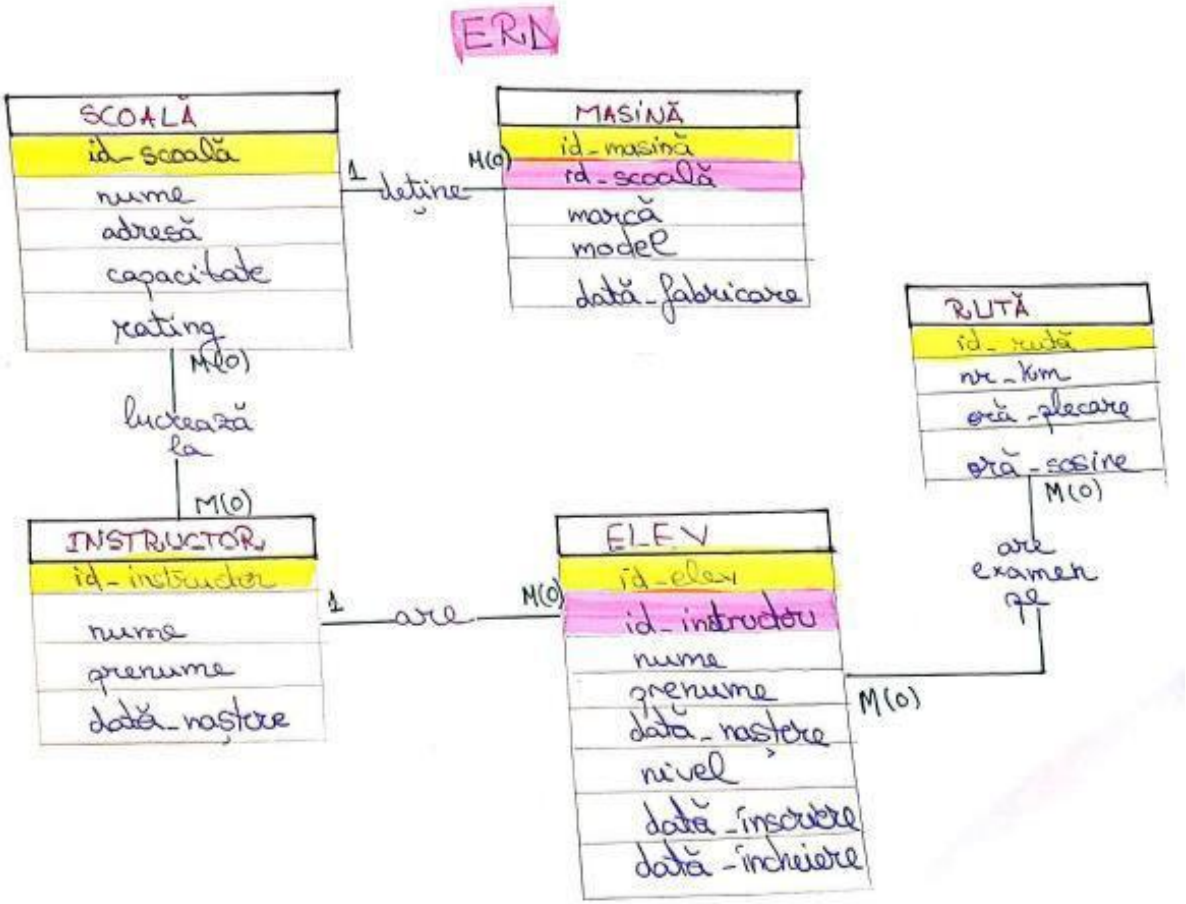
# SCOALĂ DE ȘOFERI

- **Scurtă prezentare a bazei de date**

Aceasta este o bază de date pentru gestionarea școlilor de șoferi, conținând date despre acestea, precum și despre elevi, instructori și examene. De asemenea aceasta păstrează date despre mașinile deținute de fiecare școală, dar și despre rute predefinite pentru examenul practice.

- **Diagrama entitate-relație**



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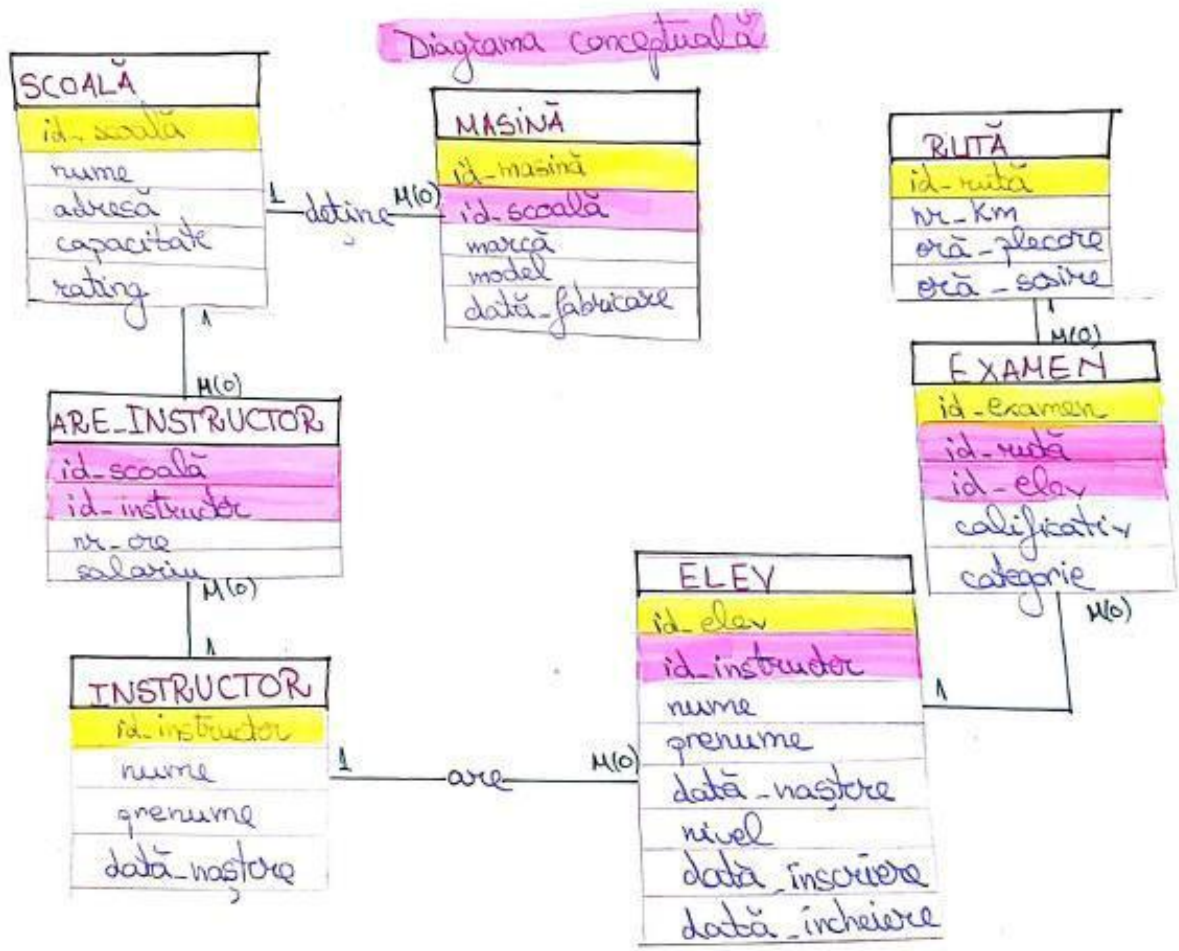
- **Diagrama conceptuală**



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- **Definirea tabelelor in Oracle si implementarea constrângerilor de integritate**

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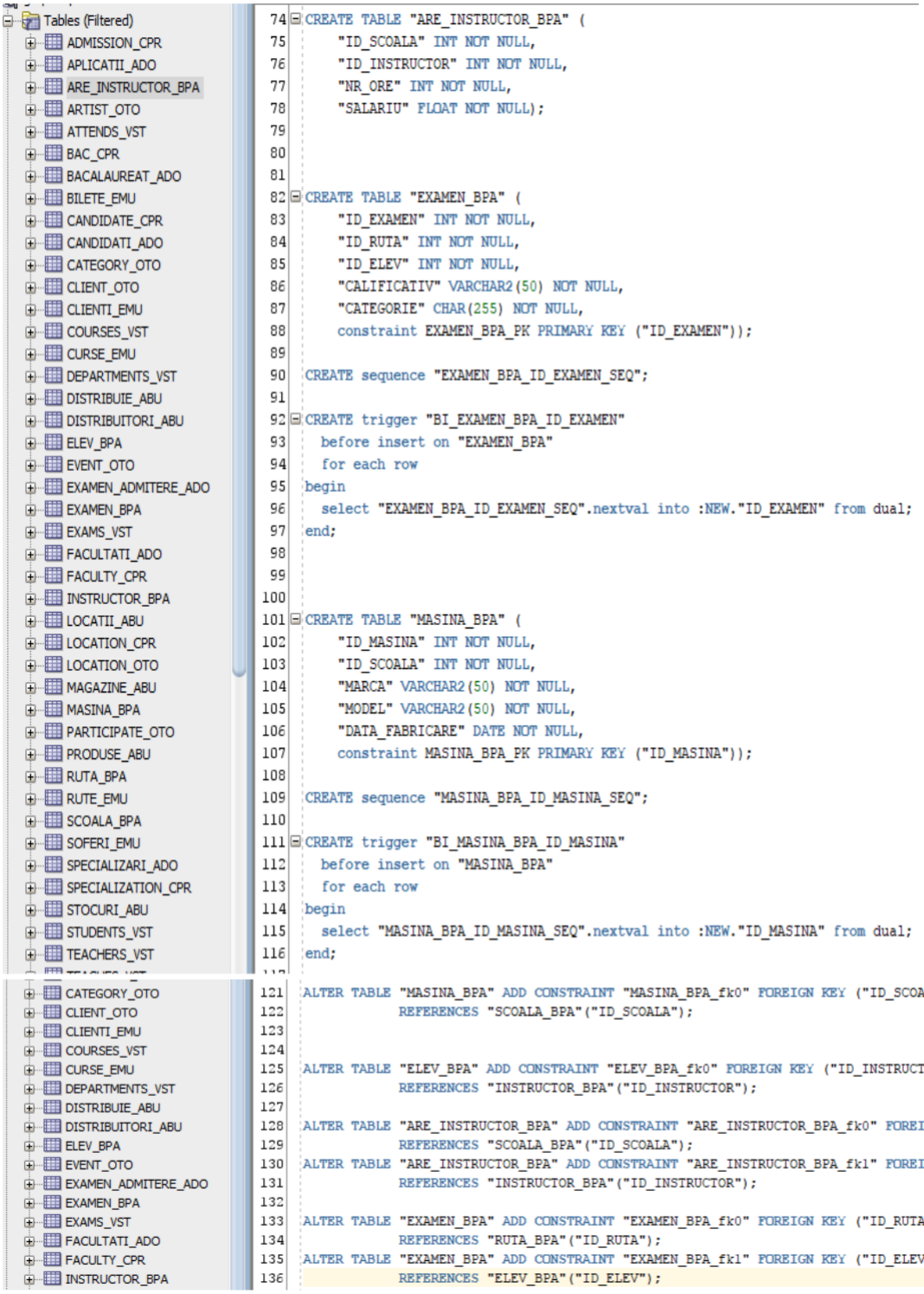


Pentru realizarea auto-incrementării au fost necesare crearea unui sequence si a unui trigger conform surselor următoare, valabile pentru bazele de date Oracle:

- https://www.w3schools.com/sql/sql_autoincrement.asp
- http://www.java2s.com/Code/Oracle/Trigger/Usetriggertocreateautoincrementcolumn.htm

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- **Adăugarea informațiilor in tabele**

~ *INSTRUCTOR*

```
INSERT INTO instructor_bpa (nume,prenume,data_nastere)
VALUES ('Ionescu','Ionel',TO_DATE('1989-12-09','YYYY-MM-DD'));

INSERT INTO instructor_bpa (nume,prenume,data_nastere)
VALUES ('Marinescu','Monica',TO_DATE('1972-02-12','YYYY-MM-DD'));

INSERT INTO instructor_bpa (nume,prenume,data_nastere)
VALUES ('Mihnea','Aurel',TO_DATE('1977-11-29','YYYY-MM-DD'));

INSERT INTO instructor_bpa (nume,prenume,data_nastere)
VALUES ('Mateescu','Alexandru',TO_DATE('1990-01-21','YYYY-MM-DD'));

INSERT INTO instructor_bpa (nume,prenume,data_nastere)
VALUES ('Popa','Irina',TO_DATE('1982-12-29','YYYY-MM-DD'));

INSERT INTO instructor_bpa (nume,prenume,data_nastere)
VALUES ('Baniciu','Andrei',TO_DATE('1989-03-05','YYYY-MM-DD'));
```

~ *RUTA*

```
INSERT INTO ruta_bpa (nr_km,ora_plecare,ora_sosire)
VALUES (10, TO_TIMESTAMP ('10-Sep-20 14:10:10.123000', 'DD-Mon-RR HH24:MI:SS.FF'),
        TO_TIMESTAMP ('10-Sep-20 16:10:10.123000', 'DD-Mon-RR HH24:MI:SS.FF'));

INSERT INTO ruta_bpa (nr_km,ora_plecare,ora_sosire)
VALUES (15, TO_TIMESTAMP ('22-JUN-21 12:10:10.123000', 'DD-Mon-RR HH24:MI:SS.FF'),
        TO_TIMESTAMP ('22-JUN-21 14:30:10.123000', 'DD-Mon-RR HH24:MI:SS.FF'));

INSERT INTO ruta_bpa (nr_km,ora_plecare,ora_sosire)
VALUES (20, TO_TIMESTAMP ('30-AUG-18 11:10:10.123000', 'DD-Mon-RR HH24:MI:SS.FF'),
        TO_TIMESTAMP ('30-AUG-18 12:10:10.123000', 'DD-Mon-RR HH24:MI:SS.FF'));

INSERT INTO ruta_bpa (nr_km,ora_plecare,ora_sosire)
VALUES (13, TO_TIMESTAMP ('30-AUG-20 16:30:10.123000', 'DD-Mon-RR HH24:MI:SS.FF'),
        TO_TIMESTAMP ('30-AUG-20 19:10:10.123000', 'DD-Mon-RR HH24:MI:SS.FF'));

INSERT INTO ruta_bpa (nr_km,ora_plecare,ora_sosire)
VALUES (5, TO_TIMESTAMP ('14-Feb-19 15:50:10.123000', 'DD-Mon-RR HH24:MI:SS.FF'),
        TO_TIMESTAMP ('14-Feb-19 16:10:10.123000', 'DD-Mon-RR HH24:MI:SS.FF'));

INSERT INTO ruta_bpa (nr_km,ora_plecare,ora_sosire)
VALUES (21, TO_TIMESTAMP ('20-FEB-20 14:10:10.123000', 'DD-Mon-RR HH24:MI:SS.FF'),
        TO_TIMESTAMP ('20-Feb-20 16:10:10.123000', 'DD-Mon-RR HH24:MI:SS.FF'));
```

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~ *ELEV*

```
INSERT INTO elev_bpa (id_instructor,nume,prenume,data_nastere,nivel,data_inscriere,data_incheiere)
VALUES (2,'Gheorghe','Ionut',TO_DATE('1999-12-09','YYYY-MM-DD'),'Incepator',TO_DATE('2020-12-09','YYYY-MM-DD'),
        TO_DATE('2021-02-09','YYYY-MM-DD'));

INSERT INTO elev_bpa (id_instructor,nume,prenume,data_nastere,nivel,data_inscriere,data_incheiere)
VALUES (2,'Ghimis','Cristian',TO_DATE('2000-02-10','YYYY-MM-DD'),'Mediu',TO_DATE('2020-02-10','YYYY-MM-DD'),
        TO_DATE('2020-04-10','YYYY-MM-DD'));

INSERT INTO elev_bpa (id_instructor,nume,prenume,data_nastere,nivel,data_inscriere,data_incheiere)
VALUES (2,'Proteasa','Vlad',TO_DATE('1999-12-09','YYYY-MM-DD'),'Avansat',TO_DATE('2019-03-05','YYYY-MM-DD'),
        TO_DATE('2019-05-05','YYYY-MM-DD'));

INSERT INTO elev_bpa (id_instructor,nume,prenume,data_nastere,nivel,data_inscriere,data_incheiere)
VALUES (1,'Barda','Monica',TO_DATE('1999-07-12','YYYY-MM-DD'),'Incepator',TO_DATE('2018-08-25','YYYY-MM-DD'),
        TO_DATE('2018-10-25','YYYY-MM-DD'));

INSERT INTO elev_bpa (id_instructor,nume,prenume,data_nastere,nivel,data_inscriere,data_incheiere)
VALUES (5,'Barda','Monica',TO_DATE('1999-07-12','YYYY-MM-DD'),'Avansat',TO_DATE('2020-09-25','YYYY-MM-DD'),
        TO_DATE('2020-11-25','YYYY-MM-DD'));

INSERT INTO elev_bpa (id_instructor,nume,prenume,data_nastere,nivel,data_inscriere,data_incheiere)
VALUES (1,'Sima','Ion',TO_DATE('1999-06-09','YYYY-MM-DD'),'Mediu',TO_DATE('2020-12-09','YYYY-MM-DD'),
        TO_DATE('2021-02-09','YYYY-MM-DD'));

INSERT INTO elev_bpa (id_instructor,nume,prenume,data_nastere,nivel,data_inscriere,data_incheiere)
VALUES (1,'Dumitrana','Daniel',TO_DATE('1997-10-16','YYYY-MM-DD'),'Mediu',TO_DATE('2018-08-28','YYYY-MM-DD'),
        TO_DATE('2018-10-28','YYYY-MM-DD'));

INSERT INTO elev_bpa (id_instructor,nume,prenume,data_nastere,nivel,data_inscriere,data_incheiere)
VALUES (3,'Vasilescu','Dariana',TO_DATE('1998-04-19','YYYY-MM-DD'),'Incepator',TO_DATE('2018-12-09','YYYY-MM-DD'),
        TO_DATE('2019-02-09','YYYY-MM-DD'));

INSERT INTO elev_bpa (id_instructor,nume,prenume,data_nastere,nivel,data_inscriere,data_incheiere)
VALUES (4,'Bratu','Valerian',TO_DATE('1996-04-08','YYYY-MM-DD'),'Avansat',TO_DATE('2020-04-08','YYYY-MM-DD'),
        TO_DATE('2020-06-08','YYYY-MM-DD'));

INSERT INTO elev_bpa (id_instructor,nume,prenume,data_nastere,nivel,data_inscriere,data_incheiere)
VALUES (4,'Mario','Marcel',TO_DATE('1998-07-09','YYYY-MM-DD'),'Incepator',TO_DATE('2020-06-09','YYYY-MM-DD'),
        TO_DATE('2021-08-09','YYYY-MM-DD'));

INSERT INTO elev_bpa (id_instructor,nume,prenume,data_nastere,nivel,data_inscriere,data_incheiere)
VALUES (4,'Petre','Maria',TO_DATE('1999-03-09','YYYY-MM-DD'),'Mediu',TO_DATE('2018-07-09','YYYY-MM-DD'),
        TO_DATE('2018-09-09','YYYY-MM-DD'));

INSERT INTO elev_bpa (id_instructor,nume,prenume,data_nastere,nivel,data_inscriere,data_incheiere)
VALUES (5,'Apetrei','Mara',TO_DATE('1996-04-13','YYYY-MM-DD'),'Mediu',TO_DATE('2019-02-12','YYYY-MM-DD'),
        TO_DATE('2021-04-12','YYYY-MM-DD'));
```

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~ *MASINA*

```
INSERT INTO masina_bpa( id_scoala,marca,model,data_fabricare)
VALUES (1, 'Audi', 'A5', to_date('2007-06-09','YYYY-MM-DD'));

INSERT INTO masina_bpa( id_scoala,marca,model,data_fabricare)
VALUES (1, 'Audi', 'A4', to_date('2002-06-09','YYYY-MM-DD'));

INSERT INTO masina_bpa( id_scoala,marca,model,data_fabricare)
VALUES (2, 'Dacia', 'Logan', to_date('2005-07-01','YYYY-MM-DD'));

INSERT INTO masina_bpa( id_scoala,marca,model,data_fabricare)
VALUES (2, 'Opel', 'Astra', to_date('2000-04-03','YYYY-MM-DD'));

INSERT INTO masina_bpa( id_scoala,marca,model,data_fabricare)
VALUES (2, 'Volkswagen', 'Polo', to_date('2004-12-10','YYYY-MM-DD'));

INSERT INTO masina_bpa( id_scoala,marca,model,data_fabricare)
VALUES (3, 'Audi', 'A5', to_date('2010-07-09','YYYY-MM-DD'));

INSERT INTO masina_bpa( id_scoala,marca,model,data_fabricare)
VALUES (3, 'Volkswagen', 'Golf', to_date('2001-09-24','YYYY-MM-DD'));

INSERT INTO masina_bpa( id_scoala,marca,model,data_fabricare)
VALUES (4, 'Mercedes-Benz', 'Q7', to_date('2012-04-09','YYYY-MM-DD'));

INSERT INTO masina_bpa( id_scoala,marca,model,data_fabricare)
VALUES (5, 'Mercedes-Benz', 'Q1', to_date('2003-12-09','YYYY-MM-DD'));
```

~ *EXAMEN*

```
INSERT INTO examen_bpa(id_ruta, id_elev,calificativ,categorie)
VALUES (4,2,'Admis','C');

INSERT INTO examen_bpa(id_ruta, id_elev,calificativ,categorie)
VALUES (6,2,'Respins','C');

INSERT INTO examen_bpa(id_ruta, id_elev,calificativ,categorie)
VALUES (7,2,'Respins','C');

INSERT INTO examen_bpa(id_ruta, id_elev,calificativ,categorie)
VALUES (5,1,'Admis','C');

INSERT INTO examen_bpa(id_ruta, id_elev,calificativ,categorie)
VALUES (4,1,'Respins','C');

INSERT INTO examen_bpa(id_ruta, id_elev,calificativ,categorie)
VALUES (6,9,'Respins','C');

INSERT INTO examen_bpa(id_ruta, id_elev,calificativ,categorie)
VALUES (7,11,'Respins','D');

INSERT INTO examen_bpa(id_ruta, id_elev,calificativ,categorie)
VALUES (8,8,'Admis','E');

INSERT INTO examen_bpa(id_ruta, id_elev,calificativ,categorie)
VALUES (9,3,'Respins','E');

INSERT INTO examen_bpa(id_ruta, id_elev,calificativ,categorie)
VALUES (7,3,'Admis','E');

INSERT INTO examen_bpa(id_ruta, id_elev,calificativ,categorie)
VALUES (4,3,'Respins','E');
select * from examen_bpa;
```

~ *ARE_INSTRUCTOR*

```
INSERT INTO are_instructor_bpa(id_scoala,id_instructor,nr_ore,salariu)
VALUES (1,1,12,1200);

INSERT INTO are_instructor_bpa(id_scoala,id_instructor,nr_ore,salariu)
VALUES (3,1,20,1400);

INSERT INTO are_instructor_bpa(id_scoala,id_instructor,nr_ore,salariu)
VALUES (2,1,3,700);

INSERT INTO are_instructor_bpa(id_scoala,id_instructor,nr_ore,salariu)
VALUES (3,4,20,2200);

INSERT INTO are_instructor_bpa(id_scoala,id_instructor,nr_ore,salariu)
VALUES (4,3,10,1100);

INSERT INTO are_instructor_bpa(id_scoala,id_instructor,nr_ore,salariu)
VALUES (5,6,3,700);

INSERT INTO are_instructor_bpa(id_scoala,id_instructor,nr_ore,salariu)
VALUES (4,5,25,3500);

INSERT INTO are_instructor_bpa(id_scoala,id_instructor,nr_ore,salariu)
VALUES (1,5,5,500);

INSERT INTO are_instructor_bpa(id_scoala,id_instructor,nr_ore,salariu)
VALUES (3,6,13,1800);

INSERT INTO are_instructor_bpa(id_scoala,id_instructor,nr_ore,salariu)
VALUES (5,2,3,700);
```

- **Interogări**

```
--1. Sa se afiseze instructorii care au cel mult 2 elevi. Sa se sorteze alfabetic dupa nume.

SELECT e.id_instructor as "Id instructor", i.nume as "Nume instructor", i.prenume as "Prenume instructor",
       count(e.id_elev) as "Numar elevi"
FROM elev_bpa e
JOIN  instructor_bpa i ON (e.id_instructor=i.id_instructor)
GROUP BY e.id_instructor, i.nume, i.prenume
HAVING count(e.id_elev)<=2
ORDER BY 2;
```

Script Output | Query Result

SQL | All Rows Fetched: 3 in 0.008 seconds

| | Id instructor | Nume instructor | Prenume instructor | Numar elevi |
|---|---|---|---|---|
| 1 | 1 | Ionescu | Ionel | 2 |
| 2 | 3 | Mihnea | Aurel | 1 |
| 3 | 5 | Popa | Irina | 2 |

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```
398 --2. Sa se afiseze codul instructorilor care nu lucreaza la aceasi scoala cu instructorul care are nr_ore = 25.
399
400 SELECT id_instructor
401 FROM are_instructor_bpa
402 MINUS
403 SELECT id_instructor
404 FROM are_instructor_bpa
405 WHERE id_scoala IN (SELECT id_scoala
406                     FROM are_instructor_bpa
407                     WHERE nr_ore = 25);
```

Script Output | Query Result

SQL | All Rows Fetched: 4 in 0.008 seconds

| | ID_INSTRUCTOR |
|---|---|
| 1 | 1 |
| 2 | 2 |
| 3 | 4 |
| 4 | 6 |

```
409 --3. Sa se afiseze elevii care au inceput si incheiat scoala in 2019.
410
411 SELECT *
412 FROM elev_bpa
413 WHERE TO_CHAR(data_inscriere, 'YYYY')  = '2019' and TO_CHAR(data_incheiere, 'YYYY') = '2019' ;
414
```

Script Output | Query Result

SQL | All Rows Fetched: 1 in 0.016 seconds

| | ID_ELEV | ID_INSTRUCTOR | NUME | PRENUME | DATA_NASTERE | NIVEL | DATA_INSCRIERE | DATA_INCHEIERE |
|---|---|---|---|---|---|---|---|---|
| 1 | 3 | 2 | Proteasa | Vlad | 09-DEC-99 | Avansat | 05-MAR-19 | 05-MAY-19 |

```
415 --4. Sa se afiseze elevul care a incheiat scoala de soferi dupa cel mai mare numar de zile.
416
417 SELECT id_elev,nume,prenume,data_inscriere,data_incheiere,data_incheiere-data_inscriere as "Nr zile"
418 FROM elev_bpa
419 WHERE data_incheiere-data_inscriere =
420             (
421                 SELECT MAX(data_incheiere-data_inscriere)
422                 FROM elev_bpa
423             );
424
```

Script Output | Query Result

SQL | All Rows Fetched: 1 in 0.008 seconds

| | ID_ELEV | NUME | PRENUME | DATA_INSCRIERE | DATA_INCHEIERE | Nr zile |
|---|---|---|---|---|---|---|
| 1 | 12 | Apetrei | Mara | 12-FEB-19 | 12-APR-21 | 790 |

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```
426  --5. Sa se afiseze instructorii elevilor ce au fost admisi dupa examen.
427
428  SELECT DISTINCT i.id_instructor, i.nume, i.prenume
429  FROM examen_bpa ex
430  JOIN elev_bpa e ON (e.id_elev=ex.id_elev)
431  JOIN instructor_bpa i ON (i.id_instructor=e.id_instructor)
432  WHERE LOWER(ex.calificativ)='admis';
433
```

Script Output | Query Result

SQL | All Rows Fetched: 2 in 0.013 seconds

| | ID_INSTRUCTOR | NUME | PRENUME |
|---|---|---|---|
| 1 | 3 | Mihnea | Aurel |
| 2 | 2 | Marinescu | Monica |

```
434  --6 Sa se afiseze scoala de la care provin elevii care au categoria C la examen.
435
436  SELECT DISTINCT s.id_scoala,s.nume
437  FROM examen_bpa ex
438  JOIN elev_bpa e ON (e.id_elev=ex.id_elev)
439  JOIN instructor_bpa i ON (i.id_instructor=e.id_instructor)
440  JOIN are_instructor_bpa ai ON (ai.id_instructor=i.id_instructor)
441  JOIN scoala_bpa s ON (s.id_scoala=ai.id_scoala)
442  WHERE LOWER(ex.categorie)='c';
443
```

Script Output | Query Result

SQL | All Rows Fetched: 2 in 0.021 seconds

| | ID_SCOALA | NUME |
|---|---|---|
| 1 | 3 | Drive School |
| 2 | 5 | Mara |

```
444  --7. Sa se afiseze elevii cu durata examenului cea mai mare.
445
446  SELECT e.id_elev,e.nume,e.prenume
447  FROM ruta_bpa r
448  JOIN examen_bpa ex ON (ex.id_ruta = r.id_ruta)
449  JOIN elev_bpa e ON (e.id_elev = ex.id_elev)
450  WHERE r.ora_sosire-r.ora_plecare =
451              (
452                  SELECT MAX(ruta_bpa.ora_sosire-ruta_bpa.ora_plecare)
453                  FROM ruta_bpa
454              );
455
456
```

Script Output | Query Result

SQL | All Rows Fetched: 2 in 0.009 seconds

| | ID_ELEV | NUME | PRENUME |
|---|---|---|---|
| 1 | 9 | Bratu | Valerian |
| 2 | 2 | Ghimis | Cristian |

(Se întâmplă să fie mai mulți elevi cu aceeași durată a examenului, deoarece susțin examenul pe aceeași rută prestabilită)

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```
457 --8. Sa se afiseze instructorul si nr de elevi ai sai. Sa se sorteze descrescator dupa numarul de elevi, iar in caz de egalitate
458 --alfabetic dupa nume.
459
460 SELECT i.id_instructor,i.nume as "Nume instructor",count(e.id_elev) as "Nr elevi"
461 FROM elev_bpa e
462 JOIN instructor_bpa i ON (e.id_instructor=i.id_instructor)
463 GROUP BY e.id_instructor, i.nume, i.id_instructor
464 ORDER BY 3 DESC, 2 ASC;
465
```

Script Output | Query Result

SQL | All Rows Fetched: 5 in 0.012 seconds

| | ID_INSTRUCTOR | Nume instructor | Nr elevi |
|---|---|---|---|
| 1 | 2 | Marinescu | 3 |
| 2 | 4 | Mateescu | 3 |
| 3 | 1 | Ionescu | 2 |
| 4 | 5 | Popa | 2 |
| 5 | 3 | Mihnea | 1 |

```
466 --9. Sa se afiseze scolile care au cei mai multi elevi inscrisi.
467
468 SELECT x.id_scoala, x.nume, MAX("Nr elevi") as "Numarul elevilor" from (SELECT s.id_scoala,s.nume,count(e.id_elev) as "Nr elevi"
469 FROM examen_bpa ex
470 JOIN elev_bpa e ON (e.id_elev=ex.id_elev)
471 JOIN instructor_bpa i ON (i.id_instructor=e.id_instructor)
472 JOIN are_instructor_bpa ai ON (ai.id_instructor=i.id_instructor)
473 JOIN scoala_bpa s ON (s.id_scoala=ai.id_scoala)
474 GROUP BY s.id_scoala, s.nume) x
475 GROUP BY x.id_scoala, x.nume
476 HAVING MAX("Nr elevi") = (
477                         SELECT MAX(count(e2.id_elev))
478                         FROM examen_bpa ex2
479                         JOIN elev_bpa e2 ON (e2.id_elev=ex2.id_elev)
480                         JOIN instructor_bpa i2 ON (i2.id_instructor=e2.id_instructor)
481                         JOIN are_instructor_bpa ai2 ON (ai2.id_instructor=i2.id_instructor)
482                         JOIN scoala_bpa s2 ON (s2.id_scoala=ai2.id_scoala)
483                         GROUP BY s2.id_scoala, s2.nume
484                         );
```

Script Output | Query Result

SQL | All Rows Fetched: 1 in 0.026 seconds

| | ID_SCOALA | NUME | Numarul elevilor |
|---|---|---|---|
| 1 | 5 | Mara | 8 |

```
487 --10. Sa se afiseze instructorii care au elevi cu nivelul incepator si care au fost admisi la examen.
488
489 SELECT DISTINCT i.id_instructor, i.nume, i.prenume,e.nivel
490 FROM examen_bpa ex
491 JOIN elev_bpa e ON (e.id_elev=ex.id_elev)
492 JOIN instructor_bpa i ON (i.id_instructor=e.id_instructor)
493 WHERE LOWER(ex.calificativ)='admis' and LOWER(e.nivel) = 'incepator';
494
```

Script Output | Query Result

SQL | All Rows Fetched: 2 in 0.012 seconds

| | ID_INSTRUCTOR | NUME | PRENUME | NIVEL |
|---|---|---|---|---|
| 1 | 2 | Marinescu | Monica | Incepator |
| 2 | 3 | Mihnea | Aurel | Incepator |

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```
495  --11. Sa se afiseze toate persoanele(instructori+elevi) care au anul nasterii dupa anul 1987.
496
497  SELECT nume, prenume, data_nastere
498  FROM instructor_bpa
499  WHERE TO_CHAR(data_nastere, 'YYYY') > '1987'
500  UNION
501  SELECT  nume, prenume, data_nastere
502  FROM elev_bpa
503  WHERE TO_CHAR(data_nastere, 'YYYY') > '1987' ;
```

Script Output | Query Result

SQL | All Rows Fetched: 14 in 0.012 seconds

| | NUME | PRENUME | DATA_NASTERE |
|---|---|---|---|
| 1 | Apetrei | Mara | 13-APR-96 |
| 2 | Baniciu | Andrei | 05-MAR-89 |
| 3 | Barda | Monica | 12-JUL-99 |
| 4 | Bratu | Valerian | 08-APR-96 |
| 5 | Dumitrana | Daniel | 16-OCT-97 |
| 6 | Gheorghe | Ionut | 09-DEC-99 |
| 7 | Ghimis | Cristian | 10-FEB-00 |
| 8 | Ionescu | Ionel | 09-DEC-89 |
| 9 | Mario | Marcel | 09-JUL-98 |
| 10 | Mateescu | Alexandru | 21-JAN-90 |
| 11 | Petre | Maria | 09-MAR-99 |
| 12 | Proteasa | Vlad | 09-DEC-99 |
| 13 | Sima | Ion | 09-JUN-99 |
| 14 | Vasilescu | Dariana | 19-APR-98 |

```
505  --12. Sa se afiseze pentru salariile instructorilor cuprinse intre [0,800) "MIC" , [800,1300) "MEDIU",
506  --[1300,2500] "MARE" , peste 2500 "FOARTE MARE".
507
508  SELECT salariu,
509  CASE
510          WHEN (salariu < 800) THEN 'MIC'
511          WHEN (salariu >= 800 AND salariu < 1300) THEN 'MEDIU'
512          WHEN (salariu >= 1300 AND salariu < 2500) THEN 'MARE'
513          ELSE 'FOARTE MARE'
514          END as "TIP SALARIU"
515  FROM are_instructor_bpa;
```

Script Output | Query Result

SQL | All Rows Fetched: 10 in 0.009 seconds

| | SALARIU | TIP SALARIU |
|---|---|---|
| 1 | 1200 | MEDIU |
| 2 | 2200 | MARE |
| 3 | 700 | MIC |
| 4 | 1100 | MEDIU |
| 5 | 700 | MIC |
| 6 | 3500 | FOARTE MARE |
| 7 | 1800 | MARE |
| 8 | 700 | MIC |
| 9 | 1400 | MARE |
| 10 | 500 | MIC |

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```
517 --13. Sa se afiseze elevii al caror nume contine doua litere 'a' sau al caror prenumele are exact 3 litere si
518 --prenumele instructorului acestora incepe cu litera 'i'.
519
520 SELECT e.id_elev as "Id elev",e.nume as "Nume elev",e.prenume as "Prenume elev", i.nume as "Nume instructor",
521        i.prenume as "Prenume instructor"
522 FROM elev_bpa e
523 JOIN instructor_bpa i ON(e.id_instructor = i.id_instructor)
524 WHERE (LOWER(e.nume) LIKE '%a%a%' OR LENGTH(e.prenume) = 3) AND (LOWER(i.nume) LIKE 'i%');
525
```

Script Output | Query Result

SQL | All Rows Fetched: 2 in 0.008 seconds

| | Id elev | Nume elev | Prenume elev | Nume instructor | Prenume instructor |
|---|---|---|---|---|---|
| 1 | 6 | Sima | Ion | Ionescu | Ionel |
| 2 | 7 | Dumitrana | Daniel | Ionescu | Ionel |

```
526 --14. Sa se afiseze toti instructorii si elevii lor, inclusiv instructorii care nu au elevi.
527
528 SELECT i.id_instructor, i.nume as "Nume instructor", i.prenume as "Prenume instructor", e.id_elev as "Id elev",
529        e.nume as "Nume elev",e.prenume as "Prenume elev"
530 FROM instructor_bpa i
531 LEFT JOIN elev_bpa e ON (i.id_instructor = e.id_instructor);
532
```

Script Output | Query Result

SQL | All Rows Fetched: 12 in 0.011 seconds

| | ID_INSTRUCTOR | Nume instructor | Prenume instructor | Id elev | Nume elev | Prenume elev |
|---|---|---|---|---|---|---|
| 1 | 2 | Marinescu | Monica | 1 | Gheorghe | Ionut |
| 2 | 2 | Marinescu | Monica | 2 | Ghimis | Cristian |
| 3 | 2 | Marinescu | Monica | 3 | Proteasa | Vlad |
| 4 | 5 | Popa | Irina | 5 | Barda | Monica |
| 5 | 1 | Ionescu | Ionel | 6 | Sima | Ion |
| 6 | 1 | Ionescu | Ionel | 7 | Dumitrana | Daniel |
| 7 | 3 | Mihnea | Aurel | 8 | Vasilescu | Dariana |
| 8 | 4 | Mateescu | Alexandru | 9 | Bratu | Valerian |
| 9 | 4 | Mateescu | Alexandru | 10 | Mario | Marcel |
| 10 | 4 | Mateescu | Alexandru | 11 | Petre | Maria |
| 11 | 5 | Popa | Irina | 12 | Apetrei | Mara |
| 12 | 6 | Baniciu | Andrei | (null) | (null) | (null) |

```
534 --15. Sa se afiseze elevii care au dat examen de mai multe ori.
535
536 SELECT e.nume as "Nume",e.prenume as "Prenume", count(e.id_elev) as "Numar sustineri examen"
537 FROM elev_bpa e
538 JOIN examen_bpa ex ON (ex.id_elev = e.id_elev)
539 GROUP BY e.nume, e.prenume
540 HAVING COUNT(e.id_elev) > 1;
```

Script Output | Query Result

SQL | All Rows Fetched: 3 in 0.011 seconds

| | Nume | Prenume | Numar sustineri examen |
|---|---|---|---|
| 1 | Proteasa | Vlad | 3 |
| 2 | Ghimis | Cristian | 3 |
| 3 | Gheorghe | Ionut | 2 |

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```
544  --16. Sa se afiseze toate id-urile instructorilor care lucreaza la scoli cu rating = 7.
545
546  SELECT DISTINCT id_instructor
547  FROM are_instructor_bpa ai1
548  WHERE NOT EXISTS
549      (SELECT 1
550       FROM scoala_bpa s
551       WHERE  rating = 7
552       AND NOT EXISTS
553          (SELECT 2
554           FROM are_instructor_bpa ai2
555           WHERE s.id_scoala = ai2.id_scoala
556           AND ai2.id_instructor=ai1.id_instructor
557           ))
558  ORDER BY 1;
```

Script Output | Query Result

SQL | All Rows Fetched: 3 in 0.009 seconds

| | ID_INSTRUCTOR |
|---|---|
| 1 | 1 |
| 2 | 4 |
| 3 | 6 |

- **Tabelele populate cu date**

INSTRUCTOR_BPA

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | De

Sort.. | Filter:

| | ID_INSTRUCTOR | NUME | PRENUME | DATA_NASTERE |
|---|---|---|---|---|
| 1 | 1 | Ionescu | Ionel | 09-DEC-89 |
| 2 | 2 | Marinescu | Monica | 12-FEB-72 |
| 3 | 3 | Mihnea | Aurel | 29-NOV-77 |
| 4 | 4 | Mateescu | Alexandru | 21-JAN-90 |
| 5 | 5 | Popa | Irina | 29-DEC-82 |
| 6 | 6 | Baniciu | Andrei | 05-MAR-89 |

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ARE_INSTRUCTOR_BPA

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashba

Sort.. | Filter:

| | ID_SCOALA | ID_INSTRUCTOR | NR_ORE | SALARIU |
|---|---|---|---|---|
| 1 | 1 | 1 | 12 | 1200 |
| 2 | 3 | 4 | 20 | 2200 |
| 3 | 2 | 1 | 3 | 700 |
| 4 | 4 | 3 | 10 | 1100 |
| 5 | 5 | 6 | 3 | 700 |
| 6 | 4 | 5 | 25 | 3500 |
| 7 | 3 | 6 | 13 | 1800 |
| 8 | 5 | 2 | 3 | 700 |
| 9 | 3 | 1 | 20 | 1400 |
| 10 | 1 | 5 | 5 | 500 |

SCOALA_BPA

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Part

Sort.. | Filter:

| | ID_SCOALA | NUME | ADRESA | CAPACITATE | RATING |
|---|---|---|---|---|---|
| 1 | 1 | Cama | Strada Maria Tanase 3 | 12 | 8 |
| 2 | 2 | TOP | Calea Mosilor 84 | 5 | 9 |
| 3 | 3 | Drive School | Strada Olteniei 35-37 | 20 | 7 |
| 4 | 4 | Teo | Strada Florilor 12 | 15 | 5 |
| 5 | 5 | Mara | Strada Ion Creanga 45 | 20 | 10 |

MASINA_BPA

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Det

Sort.. | Filter:

| | ID_MASINA | ID_SCOALA | MARCA | MODEL | DATA_FABRICARE |
|---|---|---|---|---|---|
| 1 | 1 | 1 | Audi | A5 | 09-JUN-07 |
| 2 | 2 | 1 | Audi | A4 | 09-JUN-02 |
| 3 | 3 | 2 | Dacia | Logan | 01-JUL-05 |
| 4 | 4 | 2 | Opel | Astra | 03-APR-00 |
| 5 | 5 | 2 | Volkswagen | Polo | 10-DEC-04 |
| 6 | 6 | 3 | Audi | A5 | 09-JUL-10 |
| 7 | 7 | 3 | Volkswagen | Golf | 24-SEP-01 |
| 8 | 8 | 4 | Mercedes-Benz | Q7 | 09-APR-12 |
| 9 | 9 | 5 | Mercedes-Benz | Q1 | 09-DEC-03 |

ELEV_BPA

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

Sort.. | Filter:

| | ID_ELEV | ID_INSTRUCTOR | NUME | PRENUME | DATA_NASTERE | NIVEL | DATA_INSCRIERE | DATA_INCHEIERE |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 2 | Gheorghe | Ionut | 09-DEC-99 | Incepator | 09-DEC-20 | 09-FEB-21 |
| 2 | 2 | 2 | Ghimis | Cristian | 10-FEB-00 | Mediu | 10-FEB-20 | 10-APR-20 |
| 3 | 3 | 2 | Proteasa | Vlad | 09-DEC-99 | Avansat | 05-MAR-19 | 05-MAY-19 |
| 4 | 5 | 5 | Barda | Monica | 12-JUL-99 | Avansat | 25-SEP-20 | 25-NOV-20 |
| 5 | 6 | 1 | Sima | Ion | 09-JUN-99 | Mediu | 09-DEC-20 | 09-FEB-21 |
| 6 | 7 | 1 | Dumitrana | Daniel | 16-OCT-97 | Mediu | 28-AUG-18 | 28-OCT-18 |
| 7 | 8 | 3 | Vasilescu | Dariana | 19-APR-98 | Incepator | 09-DEC-18 | 09-FEB-19 |
| 8 | 9 | 4 | Bratu | Valerian | 08-APR-96 | Avansat | 08-APR-20 | 08-JUN-20 |
| 9 | 10 | 4 | Mario | Marcel | 09-JUL-98 | Incepator | 09-JUN-20 | 09-AUG-21 |
| 10 | 11 | 4 | Petre | Maria | 09-MAR-99 | Mediu | 09-JUL-18 | 09-SEP-18 |
| 11 | 12 | 5 | Apetrei | Mara | 13-APR-96 | Mediu | 12-FEB-19 | 12-APR-21 |

EXAMEN_BPA

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Depend

Sort.. | Filter:

| | ID_EXAMEN | ID_RUTA | ID_ELEV | CALIFICATIV | CATEGORIE |
|---|---|---|---|---|---|
| 1 | 1 | 4 | 2 | Admis | C |
| 2 | 2 | 5 | 1 | Admis | C |
| 3 | 3 | 6 | 9 | Respins | C |
| 4 | 4 | 7 | 11 | Respins | D |
| 5 | 5 | 8 | 8 | Admis | E |
| 6 | 6 | 9 | 3 | Respins | E |
| 7 | 7 | 6 | 2 | Respins | C |
| 8 | 8 | 7 | 3 | Admis | E |
| 9 | 9 | 7 | 2 | Respins | C |
| 10 | 10 | 4 | 3 | Respins | E |
| 11 | 11 | 4 | 1 | Respins | C |

RUTA_BPA

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

Sort.. | Filter:

| | ID_RUTA | NR_KM | ORA_PLECARE | ORA_SOSIRE |
|---|---|---|---|---|
| 1 | 4 | 10 | 10-SEP-20 02.10.10.123000000 PM | 10-SEP-20 04.10.10.123000000 PM |
| 2 | 5 | 15 | 22-JUN-21 01.10.10.123000000 PM | 22-JUN-21 03.30.10.123000000 PM |
| 3 | 6 | 13 | 30-AUG-20 04.30.10.123000000 PM | 30-AUG-20 07.10.10.123000000 PM |
| 4 | 7 | 20 | 30-AUG-18 11.10.10.123000000 AM | 30-AUG-18 12.10.10.123000000 PM |
| 5 | 8 | 5 | 14-FEB-19 03.50.10.123000000 PM | 14-FEB-19 04.10.10.123000000 PM |
| 6 | 9 | 21 | 20-FEB-20 02.10.10.123000000 PM | 20-FEB-20 04.10.10.123000000 PM |