

# **Administrarea unei biblioteci online**

Student:

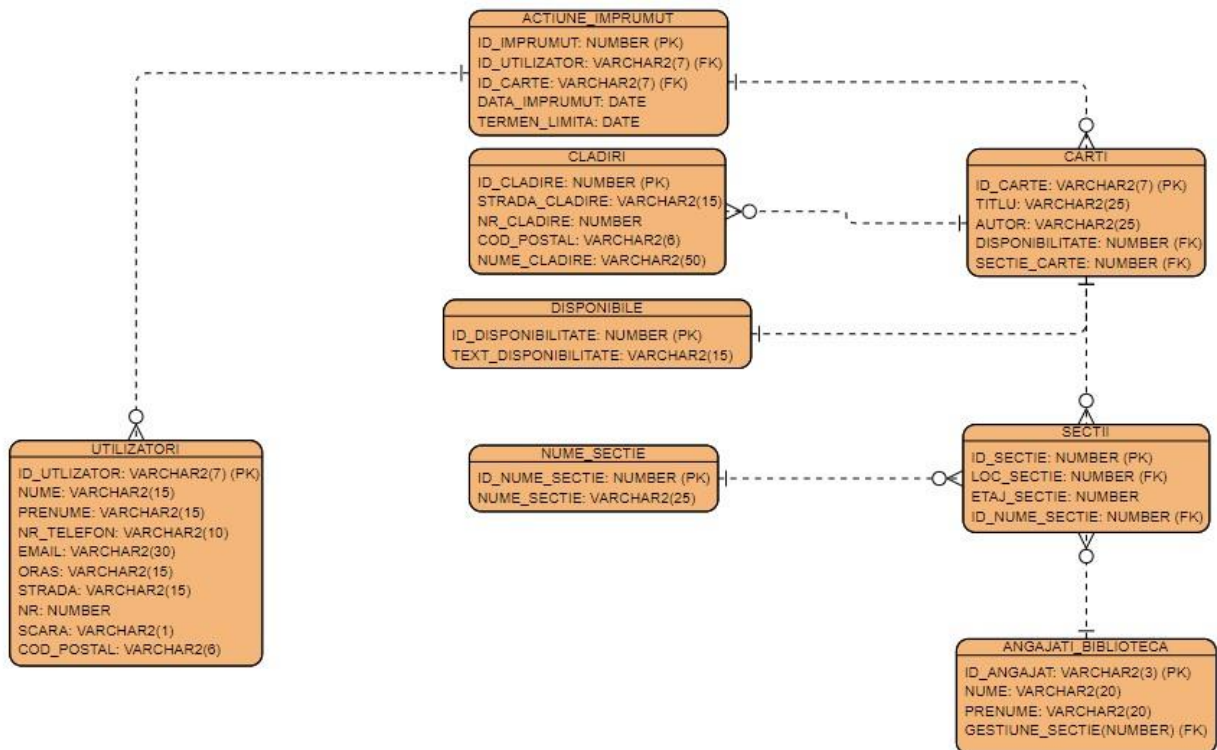
Șandor Denis-Andrei

IR

## DESCRIEREA TEMEI (cerinta 1):

Tematica proiectului o reprezinta administrarea unei biblioteci. Exista o tabela care contine persoanele care au legitimatie pentru accesul la biblioteca (UTILIZATORI), o tabela in care se retin imprumuturile facute de acestia (ACTIUNE\_IMPRUMUT), o tabela ce contine cartile din biblioteca (CARTI), o tabela cu angajatii bibliotecii (ANGAJATI\_BIBLIOTECA), o tabela cu adresele aferente cladirilor ce apartin de biblioteca (CLADIRI), o tabela cu numele sectiei (NUME\_SECTII si o tabela ce contine mai multe informatii relevante fiecarei sectii (SECTII).

## DIAGRAMA ERD (cerinta 3):

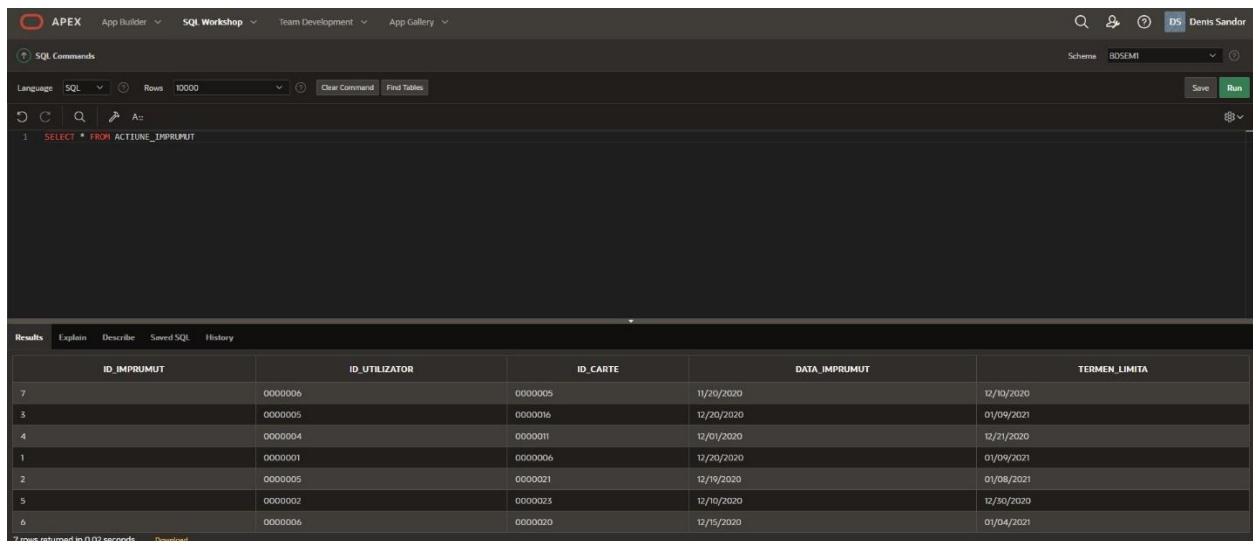


### BCNF(cerinta 2):

- fiecare atribut din tabele are valori atomice (aducerea la FN1);
- elementele oricarui tabel sunt dependente functionale de totalitatea cheii primare, in plus toate tabelele au cheie primara formata dintr-un singur atribut, deci sunt automat si in FN2;
- toate atributele non-chei ale unei relatii depind numai de chei candidate ale acelei relatii, iar toate atributele non-cheie sunt mutual independente (FN3);
- nu exista redundanta (BCNF)

### CREAREA TABELELOR (cerinta 4 + 5 – vizualizare date din tabela):

```
CREATE TABLE ACTIUNE_IMPRUMUT (  
  "ID_IMPRUMUT" INTEGER,  
  "ID_UTILIZATOR" VARCHAR2(7) NOT NULL,  
  "ID_CARTE" VARCHAR2(7) NOT NULL,  
  "DATA_IMPRUMUT" DATE NOT NULL,  
  "TERMEN_LIMITA" DATE NOT NULL,  
  CONSTRAINT ID_IMPRUMUT_PRIMARY_KEY PRIMARY KEY (ID_IMPRUMUT),  
  CONSTRAINT ID_UTILIZATOR_FOREIGN_KEY FOREIGN KEY (ID_UTILIZATOR)  
  REFERENCES UTILIZATORI (ID_UTILIZATOR),  
  CONSTRAINT ID_CARTE_FOREIGN_KEY FOREIGN KEY (ID_CARTE) REFERENC  
  ES CARTI (ID_CARTE)  
);
```



The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'App Gallery'. The user is logged in as 'Denis Sandor'. The 'SQL Commands' panel shows a query: 'SELECT \* FROM ACTIUNE\_IMPRUMUT'. The 'Results' panel displays a table with 7 rows and 5 columns: ID\_IMPRUMUT, ID\_UTILIZATOR, ID\_CARTE, DATA\_IMPRUMUT, and TERMEN\_LIMITA. The table data is as follows:

ID_IMPRUMUT	ID_UTILIZATOR	ID_CARTE	DATA_IMPRUMUT	TERMEN_LIMITA
7	0000006	0000005	11/20/2020	12/10/2020
3	0000005	0000006	12/20/2020	01/09/2021
4	0000004	0000011	12/01/2020	12/21/2020
1	0000001	0000006	12/20/2020	01/09/2021
2	0000005	0000021	12/19/2020	01/08/2021
5	0000002	0000023	12/10/2020	12/30/2020
6	0000006	0000020	12/15/2020	01/04/2021

7 rows returned in 0.02 seconds. Download

```

CREATE TABLE "CLADIRI"
(
  "ID_CLADIRE" NUMBER(*,0) NOT NULL ENABLE,
  "STRADA_CLADIRE" VARCHAR2(15) NOT NULL ENABLE,
  "NR_CLADIRE" NUMBER NOT NULL ENABLE,
  "COD_POSTAL" VARCHAR2(6) NOT NULL ENABLE,
  "NUME_CLADIRE" VARCHAR2(50) NOT NULL ENABLE,
  CONSTRAINT "CLADIRI_PRIMARY_KEY" PRIMARY KEY ("ID_CLADIRE")
  USING INDEX ENABLE,
  CONSTRAINT "COD_POSTAL_CLADIRE_CHECK" CHECK
(REGEXP_LIKE(COD_POSTAL, '^[:digit:]{6}$')) ENABLE
)

```

APEX App Builder SQL Workshop Team Development App Gallery

SQL Commands

Language: SQL Rows: 10000 Clear Command First Tables Save Run

1 SELECT \* FROM CLADIRI

Results Explain Describe Saved SQL History

ID_CLADIRE	STRADA_CLADIRE	NR_CLADIRE	COD_POSTAL	NUME_CLADIRE
3	GARI	6	430171	FILIALA ION SIUGARIU
1	TRAIAN	6	430211	FILIALA TRAIAN
0	INDEPENDENTEI	48	430123	BIBLIOTECA JUDETEANA PETRE DULFU
2	NICOLAE IORGA	2	430223	FILIALA NICOLAE IORGA

4 rows returned in 0.00 seconds Download

```

CREATE TABLE "ANGAJATI_BIBLIOTECA"
(
  "ID_ANGAJAT" VARCHAR2(3),
  "NUME" VARCHAR2(20) NOT NULL ENABLE,
  "PRENUME" VARCHAR2(20) NOT NULL ENABLE,
  "GESTIUNE_SECTIE" NUMBER NOT NULL ENABLE,
  CONSTRAINT "ANGAJATI_BIBLIOTECA_PRIMARY_KEY" PRIMARY KEY
("ID_ANGAJAT")
  USING INDEX ENABLE,
  CONSTRAINT "ID_ANGAJAT_CHECK" CHECK
(REGEXP_LIKE(ID_ANGAJAT, '^[:digit:]]{3}$')) ENABLE
)

```

APEX App Builder SQL Workshop Team Development App Gallery Denis Sandor

SQL Commands Rows: 10000 Clear Command Find Tables Save Run

1 SELECT \* FROM ANGAJATI\_BIBLIOTECA

Results Explain Describe Saved SQL History

ID_ANGAJAT	NUME	PRENUME	GESTIUNE_SECTIE
004	SIMON	ALEXANDRA	3
008	PALFI	REBECA	8
010	BOT	ROBERT	9
001	ADAMESCU	ADRIAN	6
005	MARK	PAUL	2
007	BOTA	MIRELA	5
002	PAL	MARIAN	1
005	CHIS	RALUCA	4
006	KADAR	ALINA	0
009	BABILE	MARIA	7
011	PASCA	ANA	10

11 rows returned in 0.01 seconds Download

```

CREATE TABLE "UTILIZATORI"
(
    "ID_UTILIZATOR" VARCHAR2(7),
    "NUME" VARCHAR2(15) NOT NULL ENABLE,
    "PRENUME" VARCHAR2(15) NOT NULL ENABLE,
    "NR_TELEFON" VARCHAR2(10) NOT NULL ENABLE,
    "EMAIL" VARCHAR2(30),
    "ORAS" VARCHAR2(15) NOT NULL ENABLE,
    "STRADA" VARCHAR2(15) NOT NULL ENABLE,
    "NR" NUMBER NOT NULL ENABLE,
    "SCARA" VARCHAR2(1),
    "COD_POSTAL" VARCHAR2(6) NOT NULL ENABLE,
    CONSTRAINT "UTILIZATORI_PRIMARY_KEY" PRIMARY KEY
("ID_UTILIZATOR")
    CONSTRAINT "NR_TELEFON_UTILIZATORI_UNIC" UNIQUE
("NR_TELEFON")
    CONSTRAINT "EMAIL_UTILIZATORI_UNIC" UNIQUE ("EMAIL")
    CONSTRAINT "NR_TELEFON_CHECK" CHECK
(REGEXP_LIKE(NR_TELEFON, '^0[[:digit:]]{9}$')) ENABLE,
    CONSTRAINT "COD_POSTAL_CHECK" CHECK
(REGEXP_LIKE(COD_POSTAL, '^[[:digit:]]{6}$')) ENABLE,
    CONSTRAINT "ID_UTILIZATOR_CHECK" CHECK
(REGEXP_LIKE(ID_UTILIZATOR, '^[[:digit:]]{7}$')) ENABLE,
    CONSTRAINT "EMAIL_CHECK" CHECK (REGEXP_LIKE(EMAIL, '^([A-Za-
z]+[A-Za-z0-9-._]+@[A-Za-z0-9-._]+\.[A-Za-z]{2,4}$')) ENABLE
)

```

APEX App Builder SQL Workshop Team Development App Gallery

SQL Commands Rows: 10000 Clear Command First Tables Save Run

1 SELECT \* FROM UTILIZATORI

Results Explain Describe Saved SQL History

ID_UTILIZATOR	NUME	PRENUME	NR_TELEFON	EMAIL	ORAS	STRADA	NR	SCARA	COD_POSTAL
0000001	POP	ANDREI	075545876	-	BAIA MARE	GEORGE COSBUC	7	A	430762
0000006	POPOVICI	DORINA	0765328746	popivictorina@icloud.com	SEIN	STELIARUL	9	-	430872
0000004	POPESCU	ADAM	0768983212	adam_adam@yahoo.com	BAIA MARE	GRANICERILOR	104	C	430365
0000005	ONACI	ALEX	075627280	-	BAIA MARE	SATURN	123	A	430998
0000002	POP	ANDREI	0744773998	popandrei@gmail.com	BAIA MARE	AVRAM IANCU	12	C	430726
0000003	GRIGOR	DIANA	0764892187	-	BAIA MARE	AVRAM IANCU	8	-	430827

6 rows returned in 0.01 seconds Download

```

CREATE TABLE "CARTI"
(
  "ID_CARTE" VARCHAR2(7),
  "TITLU" VARCHAR2(25) NOT NULL ENABLE,
  "AUTOR" VARCHAR2(25) NOT NULL ENABLE,
  "DISPONIBILITATE" NUMBER(*,0) NOT NULL ENABLE,
  "SECTIE_CARTE" NUMBER(*,0) NOT NULL ENABLE,
  CONSTRAINT "CARTI_PRIMARY_KEY" PRIMARY KEY ("ID_CARTE")
  USING INDEX ENABLE,
  CONSTRAINT "ID_CARTE_CHECK" CHECK (REGEXP_LIKE(ID_CARTE,
'^[[:digit:]]{7}$')) ENABLE
)

```

APEX SQL Workshop interface showing the results of a query on the CARTI table. The query is: `SELECT * FROM CARTI`. The results are displayed in a table with 5 columns: ID\_CARTE, TITLU, AUTOR, DISPONIBILITATE, and SECTIE\_CARTE. The table contains 23 rows of data.

ID_CARTE	TITLU	AUTOR	DISPONIBILITATE	SECTIE_CARTE
0000000	Greenlights	Matthew McConaughey	1	0
0000001	Patent Pending 24 Hours	Richard Slim Attorney	0	4
0000022	Sneezy the Snowman	Maureen Wright	1	10
0000014	My Own Words	Ruth Bader Ginsburg	1	3
0000016	Nicholas Nickleby	Charles Dickens	0	2
0000001	A Promised Land	Barack Obama	1	0
0000003	Humans	Brandon Stanton	1	0
0000005	Humans	Brandon Stanton	0	5
0000007	The Dinky Donkey	Craig Smith	1	6
0000009	How to Catch a Unicorn	Adam Wallace	1	8
0000021	In a Holidaze	Christina Lauren	0	9
0000002	Greenlights	Matthew McConaughey	1	0
0000015	My Own Words	Ruth Bader Ginsburg	1	3
0000006	The Wonky Donkey	Craig Smith	0	1
0000008	The Dinky Donkey	Craig Smith	1	1
0000019	Lighthouses of America	Tom Beard	1	7
0000020	This Time Next Year	Sophie Cousens	0	7
0000023	Sneezy the Snowman	Maureen Wright	0	10
0000013	What Unites Us	Rather	1	3
0000018	Selected Tales Of Mystery	Edgar Allan Poe	1	2

23 rows returned in 0.01 seconds

```

CREATE TABLE NUME_SECTIE (
  ID_NUME_SECTIE INTEGER,
  NUME_SECTIE VARCHAR2(15),
  CONSTRAINT ID_NUME_SECTIE_PRIMARY_KEY PRIMARY KEY (ID_NUME_SECTIE)
)

```

APEX SQL Workshop interface showing the results of a query on the NUME\_SECTIE table. The query is: `SELECT * FROM NUME_SECTIE`. The results are displayed in a table with 2 columns: ID\_NUME\_SECTIE and NUME\_SECTIE. The table contains 5 rows of data.

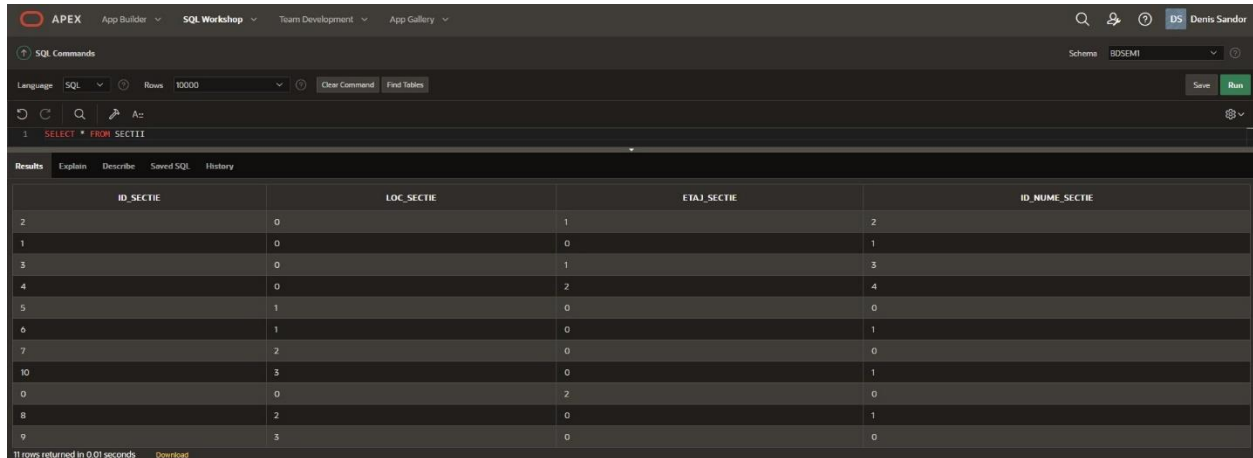
ID_NUME_SECTIE	NUME_SECTIE
0	MULTICULTURAL
4	BREVETOTECA
1	COPRI
2	SPECIALE
3	AMERICAN CORNER

5 rows returned in 0.02 seconds

```

CREATE TABLE "SECTII"
(
  "ID_SECTIE" NUMBER(*,0),
  "LOC_SECTIE" NUMBER NOT NULL ENABLE,
  "ETAJ_SECTIE" NUMBER NOT NULL ENABLE,
  "ID_NUME_SECTIE" NUMBER NOT NULL ENABLE,
  CONSTRAINT "SECTIE_PRIMARY_KEY" PRIMARY KEY ("ID_SECTIE")
  USING INDEX ENABLE
)

```



SQL Commands

Language: SQL Rows: 10000 Clear Command Find Tables Save Run

1 SELECT \* FROM SECTII

Results Explain Describe Saved SQL History

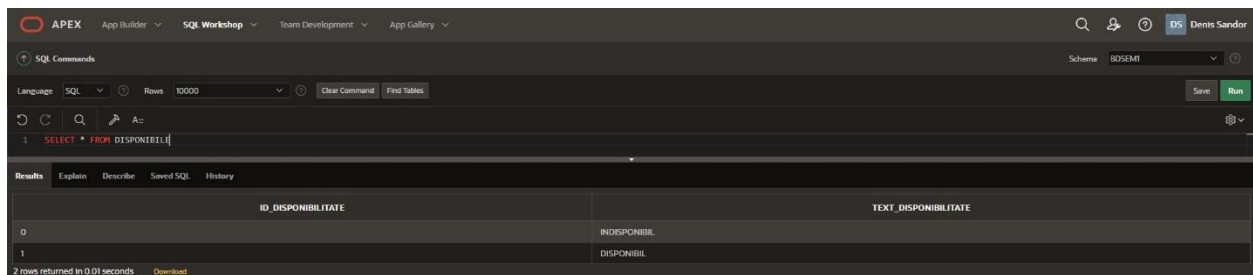
ID_SECTIE	LOC_SECTIE	ETAJ_SECTIE	ID_NUME_SECTIE
2	0	1	2
1	0	0	1
3	0	1	3
4	0	2	4
5	1	0	0
6	1	0	1
7	2	0	0
10	3	0	1
0	0	2	0
8	2	0	1
9	3	0	0

11 rows returned in 0.01 seconds Download

```

CREATE TABLE DISPONIBILE (
  ID_DISPONIBILITATE INTEGER,
  TEXT_DISPONIBILITATE VARCHAR2(15),
  CONSTRAINT "CARTI_DISPONIBILE_PRIMARY_KEY" PRIMARY KEY ("ID_DISP
ONIBILITATE")
)

```



SQL Commands

Language: SQL Rows: 10000 Clear Command Find Tables Save Run

1 SELECT \* FROM DISPONIBILE

Results Explain Describe Saved SQL History

ID_DISPONIBILITATE	TEXT_DISPONIBILITATE
0	INDISPONIBIL
1	DISPONIBIL

2 rows returned in 0.01 seconds Download



**- exemplu inserare date, stergere date, modificare date (cerinta 7):**

```
INSERT INTO UTILIZATORI VALUES ('0000007', 'PORUMB', 'DORINA', '0752658104', 'dorina.porumb@yahoo.com', 'BAIA MARE', 'FILATURII', 1, 'A', '430872')
```

```
DELETE FROM UTILIZATORI WHERE ID_UTILIZATOR = '0000007'
```

```
UPDATE UTILIZATORI  
SET SCARA = 'C'  
WHERE ID_UTILIZATOR = '0000001'
```

**- exemple modificari asupra tabeliei (cerinta 4):**

```
ALTER TABLE "UTILIZATORI" RENAME COLUMN "BLOC" to "NR"
```

```
ALTER TABLE "CARTI" MODIFY SECTIE_CARTE INTEGER
```

```
ALTER TABLE CARTI MODIFY TERMEN_LIMITA DATE NOT NULL;
```

```
ALTER TABLE "CARTI" DROP COLUMN GEN
```

**- exemple adaugari constrangeri chei straine, check, unique (cerinta 4):**

```
ALTER TABLE "ACTIUNE_IMPRUMUT" ADD CONSTRAINT  
"ID_CARTE_FOREIGN_KEY" FOREIGN KEY ("ID_CARTE")  
REFERENCES "CARTI" ("ID_CARTE")
```

```
ALTER TABLE "ACTIUNE_IMPRUMUT" ADD CONSTRAINT  
"ID_UTILIZATOR_FOREIGN_KEY" FOREIGN KEY ("ID_UTILIZATOR")  
REFERENCES "UTILIZATORI" ("ID_UTILIZATOR")
```

```
ALTER TABLE "ANGAJATI_BIBLIOTECA" ADD CONSTRAINT "NR_CLADIRE_FOREIGN_KEY"  
FOREIGN KEY (NR_CLADIRE)  
REFERENCES "CLADIRI" ("ID_CLADIRE")
```

```
ALTER TABLE "ANGAJATI_BIBLIOTECA" ADD CONSTRAINT  
"GESTIUNE_SECTIE_FOREIGN_KEY" FOREIGN KEY ("GESTIUNE_SECTIE")  
REFERENCES "SECTII" ("ID_SECTIE")
```

```
ALTER TABLE "SECTII" ADD CONSTRAINT "LOC_SECTIE_FOREIGN_KEY"  
FOREIGN KEY ("LOC_SECTIE")  
REFERENCES "CLADIRI" ("ID_CLADIRE")
```

```
ALTER TABLE "SECTII" ADD CONSTRAINT "NUME_SECTIE_FOREIGN_KEY"  
FOREIGN KEY ("ID_NUME_SECTIE")  
REFERENCES "NUME_SECTIE" ("ID_NUME_SECTIE")
```

```
ALTER TABLE "CARTI" ADD CONSTRAINT "DISPONIBILITATE_FOREIGN_KEY"  
FOREIGN KEY ("DISPONIBILITATE")  
REFERENCES "DISPONIBILE" ("ID_DISPONIBILITATE")
```

```
ALTER TABLE "CARTI" ADD CONSTRAINT "SECTIE_CARTE_FOREIGN_KEY"  
FOREIGN KEY ("SECTIE_CARTE")  
REFERENCES "SECTII" ("ID_SECTIE")
```

```
ALTER TABLE "CARTI" ADD CONSTRAINT "DISPONIBILITATE_FOREIGN_KEY" F  
OREIGN KEY (DISPONIBILITATE) REFERENCES "DISPONIBILE" (ID_DISPONIBILIT  
ATE)
```

```
ALTER TABLE "UTILIZATORI" ADD CONSTRAINT COD_POSTAL_CHECK CHECK  
REGEXP_LIKE(COD_POSTAL, '^[:digit:]]{6}$')
```

```
ALTER TABLE "CLADIRI" ADD CONSTRAINT "COD_POSTAL_CLADIRE_CHECK" C  
HECK (REGEXP_LIKE(COD_POSTAL, '^[:digit:]]{6}$'))
```

```
ALTER TABLE "ACTIUNE_IMPRUMUT" ADD CONSTRAINT "ID_CARTE_IMPRUMU  
TATA_UNIC" UNIQUE ("ID_CARTE")
```

```
ALTER TABLE "UTILIZATORI" ADD CONSTRAINT NR_TELEFON_UTILIZATORI_U  
NIC UNIQUE (NR_TELEFON)
```

```
ALTER TABLE "UTILIZATORI" ADD CONSTRAINT EMAIL_UTILIZATORI_UNIC UN  
IQUE (EMAIL)
```

## - constrangeri tabela ACTIUNE\_IMPRUMUT (cerinta 5):

**APEX** App Builder SQL Workshop Team Development App Gallery

Object Browser

Tables

ACTIUNE\_IMPRUMUT

Schema: BOSEMI

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
ID_CARTE_FOREIGN_KEY	Foreign	-	ID_CARTE_FOREIGN_KEY (BOSEMI.CARTE)	ID_CARTE	NO ACTION	ENABLED	12/20/2020 03:53:35 PM	-	-
ID_CARTE_IMPRUMUTATA_UNC	Unique	-	-	ID_CARTE	-	ENABLED	12/20/2020 08:19:47 PM	ID_CARTE_IMPRUMUTATA_UNC	-
ID_IMPRUMUT_PRIMARY_KEY	Primary	-	-	ID_IMPRUMUT	-	ENABLED	12/20/2020 03:53:35 PM	ID_IMPRUMUT_PRIMARY_KEY	-
ID_UTILIZATOR_FOREIGN_KEY	Foreign	-	ID_UTILIZATOR_FOREIGN_KEY (BOSEMI.UTILIZATOR)	ID_UTILIZATOR	NO ACTION	ENABLED	12/20/2020 03:53:35 PM	-	-
SYS_C00102358593	Check	"ID_UTILIZATOR" IS NOT NULL	-	-	-	ENABLED	12/20/2020 04:07:10 PM	-	-
SYS_C00102358596	Check	"ID_CARTE" IS NOT NULL	-	-	-	ENABLED	12/20/2020 04:07:26 PM	-	-
SYS_C00102358597	Check	"DATA_IMPRUMUT" IS NOT NULL	-	-	-	ENABLED	12/20/2020 04:08:06 PM	-	-
SYS_C00102358598	Check	"TERMIN_LIMITA" IS NOT NULL	-	-	-	ENABLED	12/20/2020 04:08:31 PM	-	-

## - constrangeri tabela ANGAJATI\_BIBLIOTECA (cerinta 5):

**APEX** App Builder SQL Workshop Team Development App Gallery

Object Browser

Tables

ANGAJATI\_BIBLIOTECA

Schema: BOSEMI

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
ANGAJATI_BIBLIOTECA_PRIMARY_KEY	Primary	-	-	ID_ANGAJATI	-	ENABLED	12/19/2020 05:51:03 PM	ANGAJATI_BIBLIOTECA_PRIMARY_KEY	-
GESTIUNE_SECTIE_FOREIGN_KEY	Foreign	-	GESTIUNE_SECTIE_FOREIGN_KEY (BOSEMI.SECTIE)	GESTIUNE_SECTIE	NO ACTION	ENABLED	12/20/2020 05:35:21 PM	-	-
ID_ANGAJAT_CHECK	Check	REGEXP_LIKE(ID_ANGAJAT, "^[0-9]{3}\$")	-	-	-	ENABLED	12/20/2020 04:59:42 PM	-	-
SYS_C00102355245	Check	"NUME" IS NOT NULL	-	-	-	ENABLED	12/19/2020 05:51:03 PM	-	-
SYS_C00102355246	Check	"PRENUME" IS NOT NULL	-	-	-	ENABLED	12/19/2020 05:51:03 PM	-	-
SYS_C00102355934	Check	"GESTIUNE_SECTIE" IS NOT NULL	-	-	-	ENABLED	12/19/2020 09:25:14 PM	-	-

## - constrangeri tabela CLADIRI (cerinta 5):

**APEX** App Builder SQL Workshop Team Development App Gallery

Object Browser

Tables

CLADIRI

Schema: BOSEMI

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
CLADIRI_PRIMARY_KEY	Primary	-	-	ID_CLADIRE	-	ENABLED	12/19/2020 05:47:53 PM	CLADIRI_PRIMARY_KEY	-
COD_POSTAL_CLADIRE_CHECK	Check	REGEXP_LIKE(COD_POSTAL, "^[0-9]{5}\$")	-	-	-	ENABLED	12/20/2020 01:54:18 PM	-	-
SYS_C00102355078	Check	"ID_CLADIRE" IS NOT NULL	-	-	-	ENABLED	12/19/2020 05:47:53 PM	-	-
SYS_C00102352857	Check	"STRADA_CLADIRE" IS NOT NULL	-	-	-	ENABLED	12/20/2020 01:13:24 PM	-	-
SYS_C00102352887	Check	"NUM_CLADIRE" IS NOT NULL	-	-	-	ENABLED	12/20/2020 01:14:18 PM	-	-
SYS_C00102352890	Check	"COD_POSTAL" IS NOT NULL	-	-	-	ENABLED	12/20/2020 01:14:53 PM	-	-
SYS_C00102353434	Check	"NUME_CLADIRE" IS NOT NULL	-	-	-	ENABLED	12/20/2020 01:24:34 PM	-	-

## - constrangeri tabela DISPONIBILE (cerinta 5):

The screenshot shows the Oracle APEX SQL Workshop interface. The left sidebar lists various tables, with 'DISPONIBILE' selected. The main panel displays the 'Constraints' tab for the 'DISPONIBILE' table. The table has two constraints: a primary key 'CARTI\_DISPONIBILE\_PRIMARY\_KEY' and a check constraint 'SYS\_C00102353869'.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
CARTI_DISPONIBILE_PRIMARY_KEY	Primary	-	-	ID_DISPONIBILITATE	-	ENABLED	12/20/2020 12:49:57 PM	CARTI_DISPONIBILE_PRIMARY_KEY	-
SYS_C00102353869	Check	"TEXT_DISPONIBILITATE" IS NOT NULL	-	-	-	ENABLED	12/20/2020 12:54:14 PM	-	-

## - constrangeri tabela NUME\_SECTII (cerinta 5):

The screenshot shows the Oracle APEX SQL Workshop interface. The left sidebar lists various tables, with 'NUME\_SECTIE' selected. The main panel displays the 'Constraints' tab for the 'NUME\_SECTIE' table. The table has two constraints: a primary key 'ID\_NUME\_SECTIE\_PRIMARY\_KEY' and a check constraint 'SYS\_C00102356021'.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
ID_NUME_SECTIE_PRIMARY_KEY	Primary	-	-	ID_NUME_SECTIE	-	ENABLED	12/20/2020 01:47:57 PM	ID_NUME_SECTIE_PRIMARY_KEY	-
SYS_C00102356021	Check	"NUME_SECTIE" IS NOT NULL	-	-	-	ENABLED	12/20/2020 05:52:14 PM	-	-

## - constrangeri tabela SECTII (cerinta 5):

The screenshot shows the Oracle APEX SQL Workshop interface. The left sidebar lists various tables, with 'SECTII' selected. The main panel displays the 'Constraints' tab for the 'SECTII' table. The table has six constraints: two foreign keys, one primary key, and three check constraints.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
LOC_SECTIE_FOREIGN_KEY	Foreign	-	LOC_SECTIE_FOREIGN_KEY (BOSEMI.CLADIR)	LOC_SECTIE	NO ACTION	ENABLED	12/20/2020 06:00:47 PM	-	-
NUME_SECTIE_FOREIGN_KEY	Foreign	-	NUME_SECTIE_FOREIGN_KEY (BOSEMI.NUME_SECTIE)	ID_NUME_SECTIE	NO ACTION	ENABLED	12/20/2020 01:50:22 PM	-	-
SECTIE_PRIMARY_KEY	Primary	-	-	ID_SECTIE	-	ENABLED	12/19/2020 09:27:07 PM	SECTIE_PRIMARY_KEY	-
SYS_C00102359705	Check	"LOC_SECTIE" IS NOT NULL	-	-	-	ENABLED	12/19/2020 09:28:21 PM	-	-
SYS_C00102359706	Check	"ETIA_SECTIE" IS NOT NULL	-	-	-	ENABLED	12/19/2020 09:29:01 PM	-	-
SYS_C00102354079	Check	"ID_NUME_SECTIE" IS NOT NULL	-	-	-	ENABLED	12/20/2020 01:46:21 PM	-	-

## - constrangeri tabela CARTI (cerinta 5):

The screenshot shows the Oracle APEX SQL Workshop interface. The left sidebar lists various tables, with 'CARTI' selected. The main panel displays the 'Constraints' tab for the 'CARTI' table. The table has eight constraints: two foreign keys, one primary key, and five check constraints.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
CARTI_PRIMARY_KEY	Primary	-	-	ID_CARTE	-	ENABLED	12/19/2020 07:03:56 PM	CARTI_PRIMARY_KEY	-
DISPONIBILITATE_FOREIGN_KEY	Foreign	-	DISPONIBILITATE_FOREIGN_KEY (BOSEMI.DISPONIBILE)	DISPONIBILITATE	NO ACTION	ENABLED	12/20/2020 12:55:25 PM	-	-
ID_CARTE_CHECK	Check	REGEXP_LIKE(ID_CARTE, "[0-9]{7}")	-	-	-	ENABLED	12/20/2020 05:49:42 PM	-	-
SECTIE_CARTE_FOREIGN_KEY	Foreign	-	SECTIE_CARTE_FOREIGN_KEY (BOSEMI.SECTII)	SECTIE_CARTE	NO ACTION	ENABLED	12/19/2020 10:01:12 PM	-	-
SYS_C00102356144	Check	"TITLU" IS NOT NULL	-	-	-	ENABLED	12/19/2020 07:03:56 PM	-	-
SYS_C00102356145	Check	"AUTOR" IS NOT NULL	-	-	-	ENABLED	12/19/2020 07:03:56 PM	-	-
SYS_C00102356146	Check	"DISPONIBILITATE" IS NOT NULL	-	-	-	ENABLED	12/19/2020 07:03:56 PM	-	-
SYS_C00102356148	Check	"SECTIE_CARTE" IS NOT NULL	-	-	-	ENABLED	12/19/2020 07:03:56 PM	-	-

- constrangeri tabela **UTILIZATORI** (cerinta 5):

APEX

App Builder

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Object Browser

Schema: BOSEMI

Denis Sandor

Tables

UTILIZATORI

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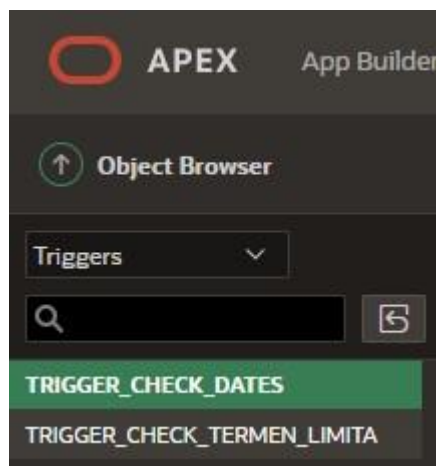
Disable

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
COD_POSTAL_CHECK	Check	REGEXP_LIKE(COD_POSTAL, '^[0-9]{4}\$')	-	-	-	ENABLED	12/20/2020 03:03:07 PM	-	-
EMAIL_CHECK	Check	REGEXP_LIKE(EMAIL, '^[A-Za-z0-9_+@]{1,64}(A-Za-z0-9+@){1,4}(A-Za-z0-9+){1,4}.([A-Za-z0-9]{2,3})\$')	-	-	-	ENABLED	12/20/2020 03:18:39 PM	-	-
EMAIL_UTILIZATORI_UNIC	Unique	-	-	EMAIL	-	ENABLED	12/20/2020 03:09:53 PM	EMAIL_UTILIZATORI_UNIC	-
ID_UTILIZATOR_CHECK	Check	REGEXP_LIKE(ID_UTILIZATOR, '^[0-9]{7}\$')	-	-	-	ENABLED	12/20/2020 03:03:28 PM	-	-
NR_TELEFON_CHECK	Check	REGEXP_LIKE(NR_TELEFON, '^[0-9]{9}\$')	-	-	-	ENABLED	12/20/2020 03:01:35 PM	-	-
NR_TELEFON_UTILIZATORI_UNIC	Unique	-	-	NR_TELEFON	-	ENABLED	12/20/2020 03:09:07 PM	NR_TELEFON_UTILIZATORI_UNIC	-
SYS_C00102339044	Check	"NUME" IS NOT NULL	-	-	-	ENABLED	12/19/2020 08:50:15 PM	-	-
SYS_C00102339045	Check	"PRENUME" IS NOT NULL	-	-	-	ENABLED	12/19/2020 08:50:20 PM	-	-
SYS_C00102339049	Check	"NR_TELEFON" IS NOT NULL	-	-	-	ENABLED	12/19/2020 08:51:56 PM	-	-
SYS_C00102342901	Check	"ORAS" IS NOT NULL	-	-	-	ENABLED	12/19/2020 11:22:32 PM	-	-
SYS_C00102342902	Check	"STRADA" IS NOT NULL	-	-	-	ENABLED	12/19/2020 11:23:09 PM	-	-
SYS_C00102342904	Check	"NR" IS NOT NULL	-	-	-	ENABLED	12/19/2020 11:23:41 PM	-	-
SYS_C00102342905	Check	"COD_POSTAL" IS NOT NULL	-	-	-	ENABLED	12/19/2020 11:25:15 PM	-	-
UTILIZATORI_PRIMARY_KEY	Primary	-	-	ID_UTILIZATOR	-	ENABLED	12/19/2020 05:51:33 PM	UTILIZATORI_PRIMARY_KEY	-

- **exemple creare trigger** (cerinta 6):

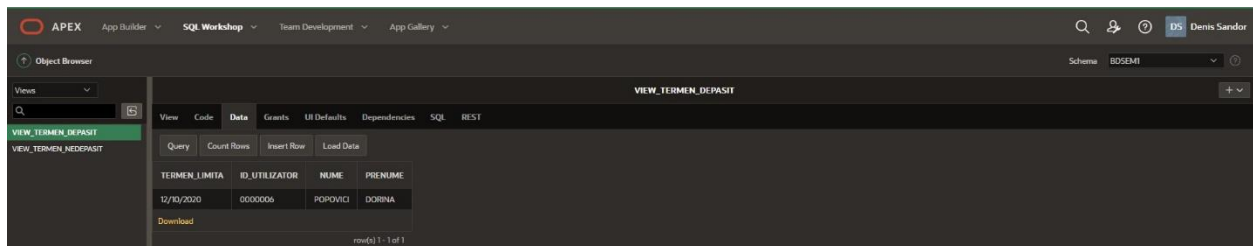
```
CREATE OR REPLACE EDITIONABLE TRIGGER "TRIGGER_CHECK_DATES"  
  BEFORE INSERT OR UPDATE ON ACTIUNE_IMPRUMUT  
  FOR EACH ROW  
BEGIN  
  IF( :new.DATA_IMPRUMUT > SYSDATE )  
  THEN  
    RAISE_APPLICATION_ERROR( -0,  
      'DATA DE IMPRUMUT NU POATE FI MAI MARE DACAT DATA CURENTA');  
  END IF;  
END;
```

```
CREATE OR REPLACE EDITIONABLE TRIGGER  
"TRIGGER_CHECK_TERMEN_LIMITA"  
  BEFORE INSERT OR UPDATE ON ACTIUNE_IMPRUMUT  
  FOR EACH ROW  
BEGIN  
  IF( :new.TERMEN_LIMITA <= :new.DATA_IMPRUMUT OR :new.TERMEN_LIMITA  
>= (:new.DATA_IMPRUMUT+21))  
  THEN  
    RAISE_APPLICATION_ERROR( -1,  
      'TERMENUL LIMITA TREBUIE SA FIE CUPRINS INTRE DATA DE IMPRUMUT  
SI DATA DE PESTE 21 DE ZILE DE LA DATA IMPRUMUTULUI');  
  END IF;  
END;
```



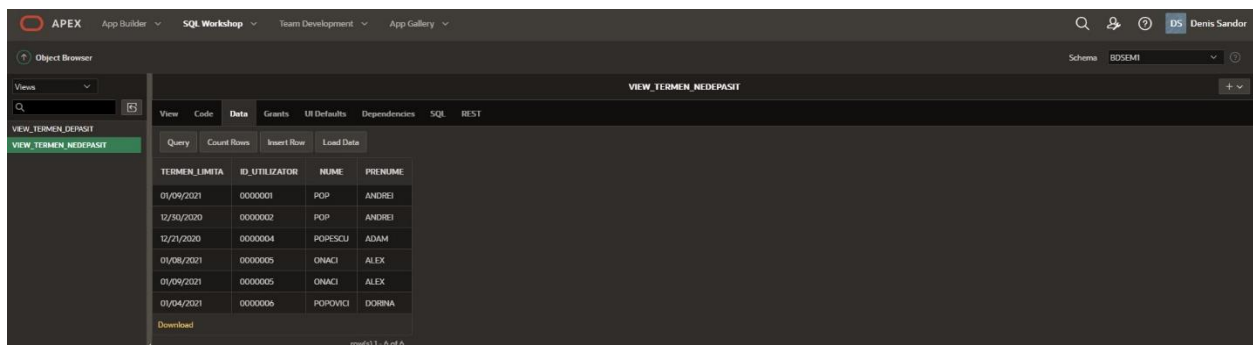
- exemple creare view (cerinta 6):

```
CREATE VIEW VIEW_TERMEN_DEPASIT AS
SELECT A.TERMEN_LIMITA, B.ID_UTILIZATOR, B.NUME, B.PRENUME
FROM ACTIUNE_IMPRUMUT A, (SELECT NUME, PRENUME, ID_UTILIZATOR FROM
UTILIZATORI)B
WHERE A.TERMEN_LIMITA < SYSDATE AND A.ID_UTILIZATOR = B.ID_UTILIZAT
OR
GROUP BY B.ID_UTILIZATOR, B.NUME, B.PRENUME, A.TERMEN_LIMITA
```



TERMEN_LIMITA	ID_UTILIZATOR	NUME	PRENUME
12/13/2020	0000006	POPOVICI	DORINA

```
CREATE VIEW VIEW_TERMEN_NEDEPASIT AS
SELECT A.TERMEN_LIMITA, B.ID_UTILIZATOR, B.NUME, B.PRENUME
FROM ACTIUNE_IMPRUMUT A, (SELECT NUME, PRENUME, ID_UTILIZATOR FROM
UTILIZATORI)B
WHERE A.TERMEN_LIMITA > SYSDATE AND A.ID_UTILIZATOR = B.ID_UTILIZAT
OR
GROUP BY B.ID_UTILIZATOR, B.NUME, B.PRENUME, A.TERMEN_LIMITA
```



TERMEN_LIMITA	ID_UTILIZATOR	NUME	PRENUME
01/09/2021	0000001	POP	ANDREI
12/30/2020	0000002	POP	ANDREI
12/21/2020	0000004	POPESCU	ADAM
01/08/2021	0000005	ONACI	ALEX
01/09/2021	0000005	ONACI	ALEX
01/04/2021	0000006	POPOVICI	DORINA

- **exemple creare index** (cerinta 6):

```
CREATE INDEX ANGAJATI_NUME_PRENUME_INDEX  
ON ANGAJATI_BIBLIOTECA (NUME, PRENUME)
```

```
CREATE INDEX UTILIZATORI_NUME_PRENUME_INDEX  
ON UTILIZATORI (NUME, PRENUME)
```

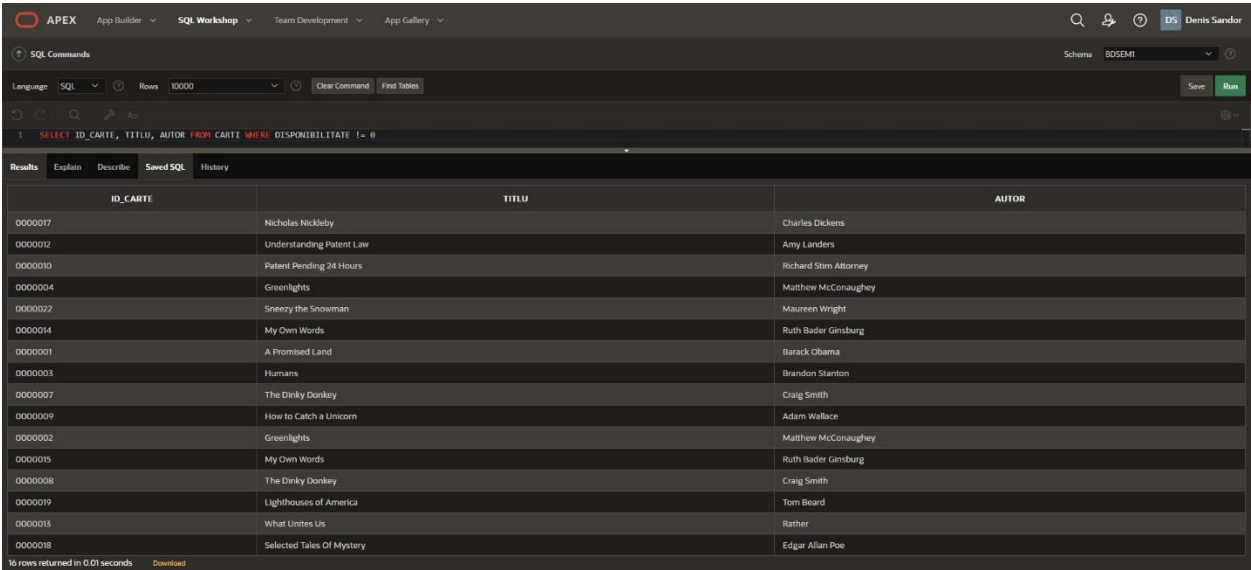
```
CREATE INDEX TITLU_AUTOR_INDEX  
ON CARTI (TITLU, AUTOR)
```





- exemple comanda **SELECT** (cerinta 7):

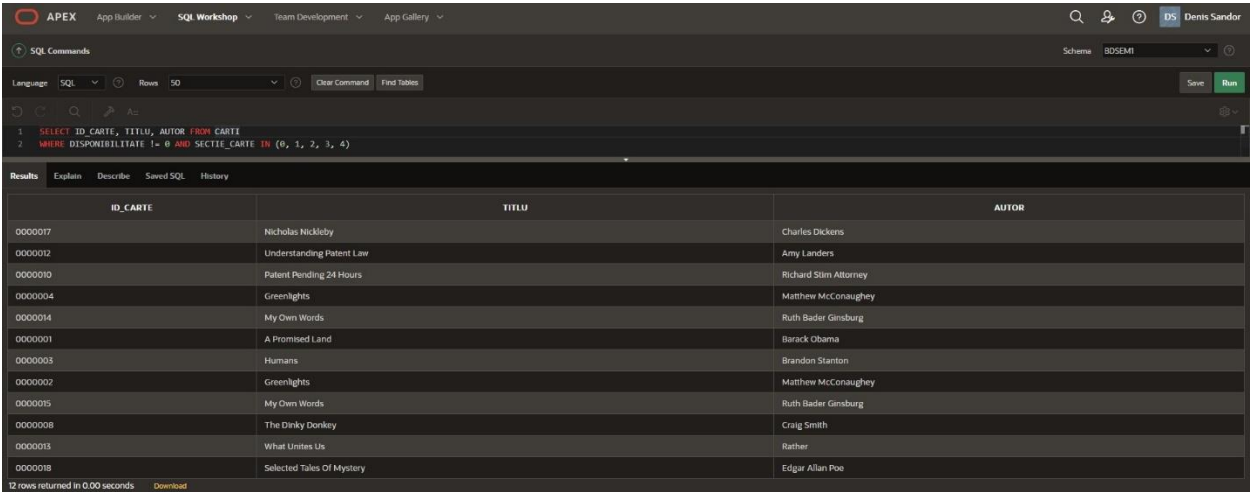
SELECT ID\_CARTE, TITLU, AUTOR FROM CARTI WHERE DISPONIBILITATE != 0



16 rows returned in 0.01 seconds

ID_CARTE	TITLU	AUTOR
0000017	Nicholas Nickleby	Charles Dickens
0000012	Understanding Patent Law	Amy Landers
0000010	Patent Pending 24 Hours	Richard Stin Attorney
0000004	Greenlights	Matthew McConaughey
0000022	Sneezy the Snowman	Maureen Wright
0000014	My Own Words	Ruth Bader Ginsburg
0000001	A Promised Land	Barack Obama
0000003	Humans	Brandon Stanton
0000007	The Dinky Donkey	Craig Smith
0000009	How to Catch a Unicorn	Adam Wallace
0000002	Greenlights	Matthew McConaughey
0000015	My Own Words	Ruth Bader Ginsburg
0000008	The Dinky Donkey	Craig Smith
0000019	Lighthouses of America	Tom Beard
0000013	What Unites Us	Rather
0000018	Selected Tales Of Mystery	Edgar Allan Poe

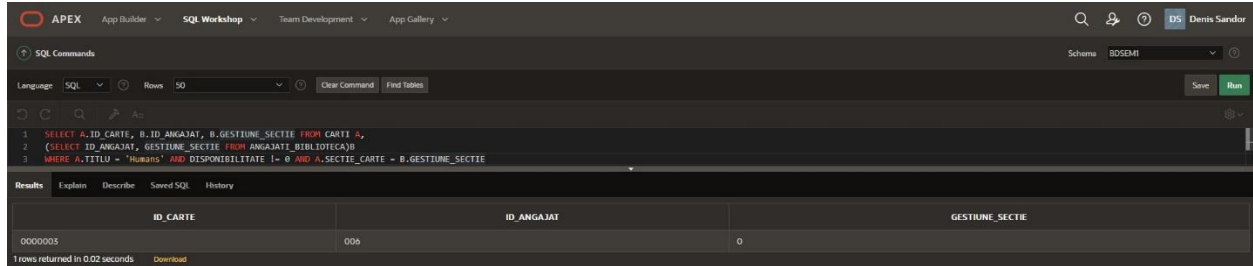
SELECT ID\_CARTE, TITLU, AUTOR FROM CARTI  
WHERE DISPONIBILITATE != 0 AND SECTIE\_CARTE IN (0, 1, 2, 3, 4)



12 rows returned in 0.00 seconds

ID_CARTE	TITLU	AUTOR
0000017	Nicholas Nickleby	Charles Dickens
0000012	Understanding Patent Law	Amy Landers
0000010	Patent Pending 24 Hours	Richard Stin Attorney
0000004	Greenlights	Matthew McConaughey
0000014	My Own Words	Ruth Bader Ginsburg
0000001	A Promised Land	Barack Obama
0000003	Humans	Brandon Stanton
0000002	Greenlights	Matthew McConaughey
0000015	My Own Words	Ruth Bader Ginsburg
0000008	The Dinky Donkey	Craig Smith
0000013	What Unites Us	Rather
0000018	Selected Tales Of Mystery	Edgar Allan Poe

SELECT A.ID\_CARTE, B.ID\_ANGAJAT, B.GESTIUNE\_SECTIE FROM CARTI A,  
(SELECT ID\_ANGAJAT, GESTIUNE\_SECTIE FROM ANGAJATI\_BIBLIOTECA)B  
WHERE A.TITLU = 'Humans' AND DISPONIBILITATE != 0 AND A.SECTIE\_CARTE =  
B.GESTIUNE\_SECTIE



The screenshot shows the APEX SQL Workshop interface. The SQL command is: `SELECT A.ID_CARTE, B.ID_ANGAJAT, B.GESTIUNE_SECTIE FROM CARTI A, (SELECT ID_ANGAJAT, GESTIUNE_SECTIE FROM ANGAJATI_BIBLIOTECA)B WHERE A.TITLU = 'Humans' AND DISPONIBILITATE != 0 AND A.SECTIE_CARTE = B.GESTIUNE_SECTIE`. The results table has three columns: ID\_CARTE, ID\_ANGAJAT, and GESTIUNE\_SECTIE. One row is returned with values 0000005, 006, and 0.

ID_CARTE	ID_ANGAJAT	GESTIUNE_SECTIE
0000005	006	0

1 rows returned in 0.02 seconds

SELECT ID\_CARTE, TITLU, AUTOR FROM CARTI WHERE TITLU LIKE ('H%')



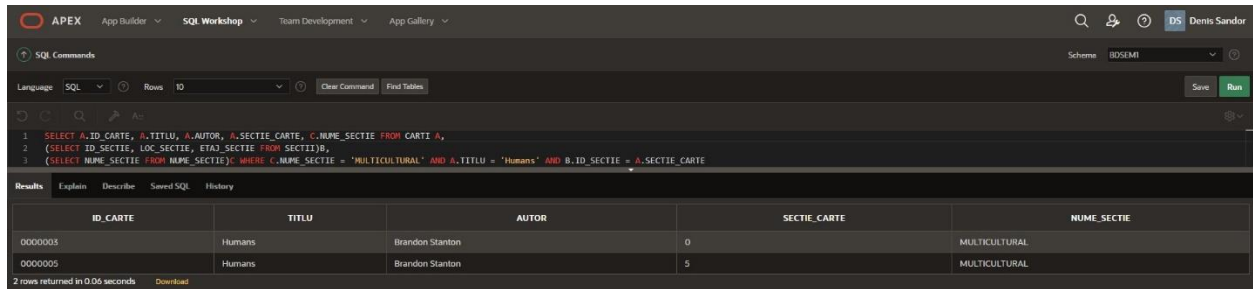
The screenshot shows the APEX SQL Workshop interface. The SQL command is: `SELECT ID_CARTE, TITLU, AUTOR FROM CARTI WHERE TITLU LIKE ('H%')`. The results table has three columns: ID\_CARTE, TITLU, and AUTOR. Three rows are returned with values: (0000005, Humans, Brandon Stanton), (0000005, Humans, Brandon Stanton), and (0000009, How to Catch a Unicorn, Adam Wallace).

ID_CARTE	TITLU	AUTOR
0000005	Humans	Brandon Stanton
0000005	Humans	Brandon Stanton
0000009	How to Catch a Unicorn	Adam Wallace

3 rows returned in 0.01 seconds

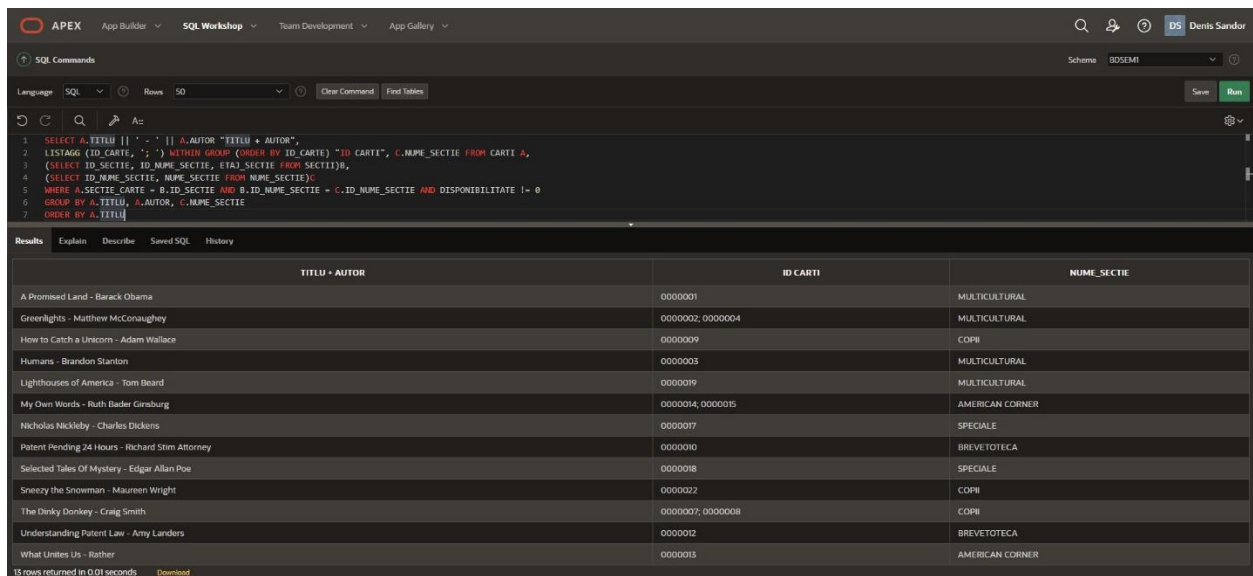
## CERINTA SUPLIMENTARA (cerinta 8):

```
SELECT A.ID_CARTE, A.TITLU, A.AUTOR, A.SECTIE_CARTE, C.NUME_SECTIE FROM CARTI A,  
(SELECT ID_SECTIE, LOC_SECTIE, ETAJ_SECTIE FROM SECTII)B,  
(SELECT NUME_SECTIE FROM NUME_SECTIE)C WHERE C.NUME_SECTIE = 'MULTICULTURAL' AND A.TITLU = 'Humans' AND B.ID_SECTIE = A.SECTIE_CARTE
```



ID_CARTE	TITLU	AUTOR	SECTIE_CARTE	NUME_SECTIE
0000003	Humans	Brandon Stanton	0	MULTICULTURAL
0000005	Humans	Brandon Stanton	5	MULTICULTURAL

```
SELECT A.TITLU || ' - ' || A.AUTOR "TITLU + AUTOR",  
LISTAGG (ID_CARTE, ';' ) WITHIN GROUP (ORDER BY ID_CARTE) "ID CARTI",  
C.NUME_SECTIE FROM CARTI A,  
(SELECT ID_SECTIE, ID_NUME_SECTIE, ETAJ_SECTIE FROM SECTII)B,  
(SELECT ID_NUME_SECTIE, NUME_SECTIE FROM NUME_SECTIE)C  
WHERE A.SECTIE_CARTE = B.ID_SECTIE AND B.ID_NUME_SECTIE =  
C.ID_NUME_SECTIE AND DISPONIBILITATE != 0  
GROUP BY A.TITLU, A.AUTOR, C.NUME_SECTIE  
ORDER BY A.TITLU
```



TITLU + AUTOR	ID CARTI	NUME_SECTIE
A Promised Land - Barack Obama	0000001	MULTICULTURAL
Greenlights - Matthew McConaughey	0000002; 0000004	MULTICULTURAL
How to Catch a Unicorn - Adam Wallace	0000009	COPPI
Humans - Brandon Stanton	0000003	MULTICULTURAL
Lighthouses of America - Tom Beard	0000019	MULTICULTURAL
My Own Words - Ruth Bader Ginsburg	0000014; 0000015	AMERICAN CORNER
Nicholas Nickleby - Charles Dickens	0000017	SPECIALE
Patent Pending 24 Hours - Richard Stin Attorney	0000010	BREVETOTECA
Selected Tales Of Mystery - Edgar Allan Poe	0000018	SPECIALE
Sneaky the Snowman - Maureen Wright	0000022	COPPI
The Dinky Donkey - Craig Smith	0000007; 0000008	COPPI
Understanding Patent Law - Amy Landers	0000012	BREVETOTECA
What Unites Us - Rather	0000013	AMERICAN CORNER

```

SELECT A.TITLU, A.AUTOR, D.NUME_CLADIRE, D.STRADA_CLADIRE,
D.NR_CLADIRE FROM CARTI A,
(SELECT ID_SECTIE, LOC_SECTIE FROM SECTII)C,
(SELECT ID_CLADIRE, NUME_CLADIRE, STRADA_CLADIRE, NR_CLADIRE FROM
CLADIRI)D
WHERE C.ID_SECTIE = A.SECTIE_CARTE AND D.ID_CLADIRE = C.LOC_SECTIE
AND A.TITLU = 'Humans'
GROUP BY A.TITLU, A.AUTOR, D.NUME_CLADIRE, D.STRADA_CLADIRE,
D.NR_CLADIRE

```

APEX App Builder SQL Workshop Team Development App Gallery

SQL Commands

Language: SQL Rows: 50 Clear Command Find Tables Save Run

```

1 SELECT A.TITLU, A.AUTOR, D.NUME_CLADIRE, D.STRADA_CLADIRE, D.NR_CLADIRE FROM CARTI A,
2 (SELECT ID_SECTIE, LOC_SECTIE FROM SECTII)C,
3 (SELECT ID_CLADIRE, NUME_CLADIRE, STRADA_CLADIRE, NR_CLADIRE FROM CLADIRI)D
4 WHERE C.ID_SECTIE = A.SECTIE_CARTE AND D.ID_CLADIRE = C.LOC_SECTIE AND A.TITLU = 'Humans'
5 GROUP BY A.TITLU, A.AUTOR, D.NUME_CLADIRE, D.STRADA_CLADIRE, D.NR_CLADIRE

```

Results Explain Describe Saved SQL History

TITLU	AUTOR	NUME_CLADIRE	STRADA_CLADIRE	NR_CLADIRE
Humans	Brandon Stanton	FILIALA TRAIAN	TRAIAN	6
Humans	Brandon Stanton	BIBLIOTECA JUDETEANA PETRE DULFU	INDEPENDENTEI	48

2 rows returned in 0.04 seconds Download

```

SELECT A.ID_UTILIZATOR, A.NUME, A.PRENUME, A.EMAIL, C.TITLU || ' - ' ||
C.AUTOR AS "TITLU + AUTOR" FROM UTILIZATORI A,
(SELECT ID_IMPRUMUT, ID_CARTE FROM ACTIUNE_IMPRUMUT)B,
(SELECT ID_CARTE, TITLU, AUTOR FROM CARTI)C
WHERE A.ID_UTILIZATOR = B.ID_IMPRUMUT AND EMAIL IS NOT NULL AND
C.ID_CARTE = B.ID_CARTE

```

APEX App Builder SQL Workshop Team Development App Gallery

SQL Commands

Language: SQL Rows: 50 Clear Command Find Tables Save Run

```

1 SELECT A.ID_UTILIZATOR, A.NUME, A.PRENUME, A.EMAIL, C.TITLU || ' - ' || C.AUTOR AS "TITLU + AUTOR" FROM UTILIZATORI A,
2 (SELECT ID_IMPRUMUT, ID_CARTE FROM ACTIUNE_IMPRUMUT)B,
3 (SELECT ID_CARTE, TITLU, AUTOR FROM CARTI)C
4 WHERE A.ID_UTILIZATOR = B.ID_IMPRUMUT AND EMAIL IS NOT NULL AND C.ID_CARTE = B.ID_CARTE

```

Results Explain Describe Saved SQL History

ID_UTILIZATOR	NUME	PRENUME	EMAIL	TITLU + AUTOR
0000006	POPOVICI	DORINA	popovicidorna@icloud.com	This Time Next Year - Sophie Cousens
0000004	POPESCU	ADAM	adam_adam@yahoo.com	Patent Pending 24 Hours - Richard Stin Attorney
0000002	POP	ANDREI	popandrei@gmail.com	In a Holiday - Christina Lauren

3 rows returned in 0.02 seconds Download

```

SELECT
CASE GROUPING(TO_CHAR(DATA_IMPRUMUT,'MONTH'))
WHEN 0
THEN TO_CHAR(DATA_IMPRUMUT,'MONTH')
ELSE 'TOTAL'
END AS "LUNA",
LPAD(' ', COUNT(DATA_IMPRUMUT)+1, '*') AS "DIAGRAMA",
COUNT(DATA_IMPRUMUT) AS "NUMAR IMPRUMUTURI"
FROM ACTIUNE_IMPRUMUT
GROUP BY ROLLUP (TO_CHAR(DATA_IMPRUMUT,'MONTH'))

```

APEX App Builder SQL Workshop Team Development App Gallery Denis Sador

SQL Commands Schema BOSEMI

Language SQL Rows 50 Clear Command Find Tables Save Run

```

1 SELECT
2 CASE GROUPING(TO_CHAR(DATA_IMPRUMUT,'MONTH'))
3 WHEN 0
4 THEN TO_CHAR(DATA_IMPRUMUT,'MONTH')
5 ELSE 'TOTAL'
6 END AS "LUNA",
7 LPAD(' ', COUNT(DATA_IMPRUMUT)+1, '*') AS "DIAGRAMA",
8 COUNT(DATA_IMPRUMUT) AS "NUMAR IMPRUMUTURI"
9 FROM ACTIUNE_IMPRUMUT
10 GROUP BY ROLLUP (TO_CHAR(DATA_IMPRUMUT,'MONTH'))

```

Results Explain Describe Saved SQL History

LUNA	DIAGRAMA	NUMAR IMPRUMUTURI
DECEMBER	*****	6
NOVEMBER	*	1
TOTAL	*****	7

3 rows returned in 0.00 seconds Download