SIA\_01

**Tema:** Analiza datelor culese pe parcursul unui studiu clinic cu privire la eficiența unui medicament administrat în tratarea diverselor probleme de sănătate precum alergii, răceală, gripă etc.

***Schema analitică ROLAP***

1. OLAP Fact View:

* **OLAP\_FACT\_FINAL\_HEALTH\_STATE** - prezintă scorul total obtinut de catre fiecare pacient la finalul studiului clinic. Acest scor total este obtinut insumand scorurile individuale obtinute de catre pacient la finalul fiecarei vizite\* pe baza unui algoritm de calcul care tine cont de raspunsurile date de catre acesta. Cu cat scorul este mai mare, cu atat starea de sanatate a pacientului s-a imbunatatit pe perioada studiului, fiind dovedita astfel eficacitatea tratamentului in vindecarea afectiunilor.

**Surse de date integrate:** patients\_view [SQL] si patients\_gen\_health\_state [CSV]

**DDL SQL:**

DROP VIEW OLAP\_FACT\_FINAL\_HEALTH\_STATE;

CREATE OR REPLACE VIEW OLAP\_FACT\_FINAL\_HEALTH\_STATE AS

SELECT P.Subject\_Id, PV.Symptoms

, SUM(P.Health\_State) as Final\_Health\_State

FROM patients\_gen\_health\_state P

INNER JOIN patients\_view PV

ON P.Subject\_Id = PV.Subject\_Id

GROUP BY P.Subject\_Id, PV.Symptoms;

1. OLAP Dimension View:

* **OLAP\_DIM\_SUBJ\_SITE\_REGION**

Nivel de agregare: Subject -> Site -> Region

**Surse de date integrate:** patients\_view [SQL], regions\_view [XML], regions\_details\_view [SQL]

**DDL SQL:**

DROP VIEW OLAP\_DIM\_SUBJ\_SITE\_REGION;

CREATE OR REPLACE VIEW OLAP\_DIM\_SUBJ\_SITE\_REGION AS

SELECT

PV.Subject\_Id as subject\_id,

PV.site as site\_nr,

RV.Region\_Id as region\_Id, RDV.Region\_Name as region\_name

FROM patients\_view PV

INNER JOIN regions\_View RV ON PV.Site = RV.Site\_number

INNER JOIN regions\_details\_view RDV ON RV.site = RDV.site\_number;

SELECT \* FROM OLAP\_DIM\_SUBJ\_SITE\_REGION;

* **OLAP\_DIM\_SUBJ\_AGE\_VISITS**

Nivel de agregare: Subject -> Age -> Visits

**Surse de date integrate**: patients\_view [SQL] si patients\_gen\_health\_state [CSV]

**DDL SQL:**

DROP VIEW OLAP\_DIM\_SUBJ\_AGE\_VISITS;

CREATE OR REPLACE VIEW OLAP\_DIM\_SUBJ\_AGE\_VISITS AS

SELECT

PV.Subject\_Id as subject\_id,

PV.Age as age,

P.Visit\_Nr as visit\_nr

FROM patients\_view PV

INNER JOIN patients\_gen\_health\_state P ON P.Subject\_Id = PV.Subject\_Id;

* **OLAP\_DIM\_SUBJ\_AGE\_GENDER**

Nivel de agregare: Subject -> Region -> Age -> Gender

**Surse de date integrate**: regions\_view [XML], regions\_details\_view [SQL] si patients\_view [SQL]

**DDL SQL:**

DROP VIEW OLAP\_DIM\_SUBJ\_AGE\_GENDER;

CREATE OR REPLACE VIEW OLAP\_DIM\_SUBJ\_AGE\_GENDER AS

SELECT

PV.Subject\_Id as subject\_id,

PV.Age as age,

PV.Gender as gender,

RV.Region\_Id as region\_id,

RDV.Region\_Name as region\_name

FROM patients\_view PV

INNER JOIN regions\_view RV on PV.site = RV.site\_number

INNER JOIN regions\_details\_view RDV on RV.Region\_Id = RVD.Region\_Id;

* **OLAP\_DIM\_SUBJ\_REGION\_OPINION**

Nivel de agregare: Subject -> Region -> Opinion = 'satisfied'

**Surse de date integrate**: mts\_to\_view [XLS], patients\_view [SQL], regions\_view [XML], regions\_details\_view [SQL]

**DDL SQL:**

DROP VIEW OLAP\_DIM\_SUBJ\_REGION\_OPINION;

CREATE OR REPLACE VIEW OLAP\_DIM\_SUBJ\_REGION\_OPINION AS

SELECT

PV.Subject\_Id as subject\_id,

MTS.Usual\_Activity as gen\_opinion

RDV.Region\_Name as region\_name

FROM

INNER JOIN patients\_view PV

INNER JOIN regions\_view RV ON PV.site = RV.site\_number

INNER JOIN regions\_details\_view RDV ON RV.region\_id = RDV.region\_name

INNER JOIN mts\_to\_view ON PV.subject\_id = MTS.subject\_id

WHERE MTS.Usual\_Activity LIKE '%satisfied%';

1. OLAP Analytical Views:

* **OLAP\_VIEW\_FHEALTH\_STATE\_SITE\_REGIONS** - evaluarea starii de sanatate pe clinici si regiuni

**Tip procesare analitica**: clauza ROLLUP

* **OLAP\_VIEW\_FHEALTH\_STATE\_REG\_AGE\_GENDER**

**Tip procesare analitica:** clauza ROLLUP

**DDL SQL:**

DROP VIEW OLAP\_VIEW\_FHEALTH\_STATE\_REG\_AGE\_GENDER;

CREATE OR REPLACE VIEW OLAP\_VIEW\_FHEALTH\_STATE\_REG\_AGE\_GENDER AS

SELECT

CASE

WHEN GROUPING(D3.region\_name) = 1 THEN '{Total General}'

ELSE D3.region\_name END AS Region\_Name,

CASE

WHEN GROUPING(D3.region\_name) = 1 THEN ' '

WHEN GROUPING(D3.age) = 1 THEN 'subtotal Region ' || D3.region\_name

ELSE D3.age END AS Age,

CASE

WHEN GROUPING(D3.region\_name) = 1 THEN ' '

WHEN GROUPING(D3.age) = 1 THEN ' '

WHEN GROUPING(D3.gender) = 1 THEN 'subtotal gender ' || D3.gender

ELSE to\_char(D3.Subject\_Id) END AS Subject\_Identifier,

SUM(NVL(f.Final\_Health\_State, 0)) as Final\_Health\_State

FROM OLAP\_DIM\_SUBJ\_AGE\_GENDER D3

INNER JOIN OLAP\_FACT\_FINAL\_HEALTH\_STATE F ON D3.subject\_id = F.subject\_id

GROUP BY ROLLUP (d3.region\_name, d3.age, d3.gender, d3.subject\_id)

ORDER BY d3.region\_name, d3.age, d3.gender, d3.subject\_id;

* **OLAP\_VIEW\_FHEALTH\_STATE\_REG\_OPINION**

**Tip procesare analitica**: clauza ROLLUP

**DDL SQL:**

CREATE OR REPLACE VIEW OLAP\_VIEW\_FHEALTH\_STATE\_REG\_OPINION AS

SELECT

CASE

WHEN GROUPING(D4.region\_name) = 1 THEN '{Total General}'

ELSE D4.region\_name END AS Region\_Name,

CASE

WHEN GROUPING(D4.region\_name) = 1 THEN ' '

WHEN GROUPING(D4.subject\_id) = 1 THEN 'subtotal regiune' || D4.subject\_id

ELSE to\_char(D4.Subject\_Id) END AS Subject\_Identifier,

SUM(NVL(f.SALES\_AMOUNT, 0)) as SALES\_AMOUNT

FROM OLAP\_DIM\_SUBJ\_REGION\_OPINION D4

INNER JOIN OLAP\_FACT\_FINAL\_HEALTH\_STATE F ON D4.subject\_id = F.subject\_id

GROUP BY ROLLUP (d4.region\_name, d4.subject\_id)

ORDER BY d4.region\_name, d4.subject\_id;

***Schema analitica simpla***

* **Clasamentul clinicilor cu cele mai bune rezultate pe regiune**

**Surse de date integrate:** patients\_gen\_health\_state [CSV], patients\_view [SQK], regions\_view [XML], regions\_details\_view [SQL]

**Tip procesare analitica:** functie analitica RANK()

**DDL SQL:**

SELECT PV.site, RDV.region\_name,

SUM(P.health\_state) AS final\_health\_state,

RANK() OVER(PARTITION BY PV.site

ORDER BY SUM(P.health\_state) DESC) as Poz

FROM patients\_view PV

INNER JOIN patients\_gen\_health\_state P ON P.subject\_id = PV.subject\_id

INNER JOIN regions\_view RV ON RV.site\_number = PV.site

INNER JOIN regions\_details\_view RDV ON RDV.region\_id = RV.region\_id

GROUP BY PV.site, RDV.region\_name

ORDER BY 1,2;

* **Totaluri pe regiune/site/simptome**

**Surse de date integrate:** patients\_gen\_health\_state [CSV], patients\_view [SQL], regions\_view [XML], regions\_details\_view [SQL]

**Tip procesare analitica:** clauza ROLLUP

**DDL SQL:**

SELECT RDV.Region\_Name, PV.site, PV.Symptoms

SUM(PV.health\_state) AS final\_health\_state

FROM patients\_gen\_health\_state P

INNER JOIN patients\_view PV ON P.subject\_id=PV.subject\_id

INNER JOIN regions\_View RV ON PV.site = RV.site\_number

INNER JOIN regions\_details\_view RDV ON RDV.region\_id = RD.region\_id

GROUP BY ROLLUP(RDV.Region\_Name, PV.SITE, PV.Symptoms)

ORDER BY 1,2,3;

* **Totaluri pe site si simptome**

**Surse de date integrate:** patients\_view [SQL], patients\_gen\_health\_state [CSV]

**Tip procesare analitica:** clauza GROUPING SETS si PIVOT

**DDL SQL:**

SELECT \* FROM

(SELECT

CASE

WHEN GROUPING(Site) = 1 AND GROUPING(Symptoms) = 0

THEN 'Subtotal simptom'

ELSE Site

END as Site,

CASE

WHEN GROUPING(Site) = 0 AND GROUPING(Symptoms) = 1

THEN 'Subtotal site'

ELSE Symptoms

END AS Symptoms,

SUM(health\_state) AS final\_health\_state

FROM patients\_view PV

INNER JOIN patients\_gen\_health\_state P ON PV.subject\_id = P.subject\_id

GROUP BY GROUPING SETS(Site, Symptoms, (Site, Symptoms))

ORDER BY 1,2,3)

PIVOT (

SUM(final\_health\_state)

FOR Symptoms IN (

'FLU' as "Gripa",

'MIGRAINE' as "Migrena",

'ALLERGY' as "Alergie",

'COLD' as "Raceala",

'Subtotal site' as "Total site")

)

ORDER BY 1;

* **Clasamentul site-urilor cu cele mai bune rezultate**

**Surse de date integrate:** patients\_view [SQL] si patients\_gen\_health\_state [CSV]

**Tip operator analitic:** clauza GROUP BY

**DDL SQL:**

SELECT site, SUM(health\_state) AS final\_health\_state

FROM patients\_view PV INNER JOIN patients\_gen\_health\_state P ON PV.subject\_id = P.subject\_id

GROUP BY site

ORDER BY SUM(health\_state) DESC;

* **Raportare rezultate pe site/regiune**

**Surse de date integrate:** patients\_gen\_health\_state [CSV], patients\_view [SQL], regions\_view [XML], regions\_details\_view [SQL]

**Tip operator analitic:** operatorul CUBE

**DDL SQL:**

SELECT

PV.site,

RDV.region\_name,

SUM(P.health\_state) AS final\_health\_state

FROM patients\_gen\_health\_state P

INNER JOIN patient\_view PV ON PV.subject\_id = P.subject\_id

INNER JOIN regions\_view RV.site\_number = PV.site

INNER JOIN regions\_details\_view RDV ON RDV.region\_id = RV.region\_id

GROUP BY CUBE(PV.Site, RDV.region\_name)

ORDER BY 1,2;

\*In vederea testarii eficientei unui medicament, participantii la studiul clinic completeaza o data sau de mai multe ori pe zi un chestionar/set de chestionare folosind un device cu software specializat (de obicei tableta). Fiecare logare pe dispozitiv in vederea completarii chestionarului/setului de chestionare constituie o vizita. Site-ul reprezinta clinica responsabila de monitorizarea participantilor dintr-o anumita regiune pe parcursul desfasurarii studiului clinic.