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, PV.Symptoms

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

FROM patients\_gen\_health\_state P

    INNER JOIN patients\_view PV

        ON P.Subject =  PV.idpacient

GROUP BY P.Subject, PV.Symptoms;

SELECT \* FROM OLAP\_FINAL\_HEALTH\_STATE;

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\_COUNTRY;

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

SELECT

    PV.Subject as subject,

    CV.countryName as countryName

FROM patients\_view PV

    INNER JOIN countries\_view CV ON PV.idpacient = CV.subject;

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

* **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 as subject,

    PV.Age as age,

    P.VIS as vis

FROM patients\_view PV

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

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

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

SELECT

PV.idpacient as idpacient,

PV.Age as age,

PV.Gender as gender,

CV.Id as Id,

CV.countryName as countryName

FROM patients\_view PV

INNER JOIN countries\_view CV on PV.idpacient = CV.subject;

* **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.idpacient as idpacient,

    MTS.MTSRES1 as gen\_opinion

FROM

    patients\_view PV

    INNER JOIN countries\_view CV ON PV.idpacient = CV.subject

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

WHERE MTS.MTSRES1 LIKE '%agree%';

1. OLAP Analytical Views:

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

**Tip procesare analitica**: clauza ROLLUP

**DDL SQL**

DROP VIEW OLAP\_VIEW\_FHEALTH\_STATE\_SITE\_REGIONS;

CREATE OR REPLACE VIEW OLAP\_VIEW\_FHEALTH\_STATE\_SITE\_REGIONS AS

SELECT

CASE

WHEN GROUPING(D1.site\_nr) = 1 THEN '{Total General}'

ELSE D1.site\_nr END AS Site\_Number,

CASE

WHEN GROUPING(D1.site\_nr) = 1 THEN ' '

WHEN GROUPING(D1.region\_name) = 1 THEN 'subtotal Site ' || D1.Site\_Number

ELSE D1.region\_name END AS Region\_Name,

CASE

WHEN GROUPING(D1.site\_nr) = 1 THEN ' '

WHEN GROUPING(D1.region\_name) = 1 THEN ' '

WHEN GROUPING(D1.Subject\_Id) = 1 THEN 'subtotal region ' || D1.Region\_Name

ELSE to\_char(D1.Subject\_Id) END AS Subject\_Identifier,

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

FROM OLAP\_DIM\_SUBJ\_SITE\_REGION D1

INNER JOIN OLAP\_FACT\_FINAL\_HEALTH\_STATE F ON D1.subject\_id = F.subject\_id

GROUP BY ROLLUP (d1.Site\_Number, d1.Region\_Name, d1.Subject\_Id)

ORDER BY d1.Site\_Number, d1.Region\_Name, d1.Subject\_Id;

* **OLAP\_VIEW\_FHEALTH\_STATE\_AGE\_VISITS**

**Tip procesare analitica:** clauza ROLLUP

**DDL SQL:**

DROP VIEW OLAP\_VIEW\_FHEALTH\_STATE\_AGE\_VISITS;

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

SELECT

CASE

WHEN GROUPING(D2.visit\_nr) = 1 THEN '{Total General}'

ELSE D2.visit\_nr END AS Visit\_Number,

CASE

WHEN GROUPING(D2.visit\_nr) = 1 THEN ' '

WHEN GROUPING(D2.age) = 1 THEN 'subtotal Site ' || D2.visit\_nr

ELSE D2.age END AS Age,

CASE

WHEN GROUPING(D2.visit\_nr) = 1 THEN ' '

WHEN GROUPING(D2.age) = 1 THEN ' '

WHEN GROUPING(D2.Subject\_Id) = 1 THEN 'age ' || D2.age

ELSE to\_char(D2.Subject\_Id) END AS Subject\_Identifier,

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

FROM OLAP\_DIM\_SUBJ\_AGE\_VISITS D2

INNER JOIN OLAP\_FACT\_FINAL\_HEALTH\_STATE F ON D2.subject\_id = F.subject\_id

GROUP BY ROLLUP (d2.visit\_nr, d2.age, d2.subject\_id)

ORDER BY d2.visit\_nr, d2.age, d2.subject\_id;

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

**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.countryName) = 1 THEN '{Total General}'

    ELSE D3.countryName END AS countryName,

  CASE

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

    WHEN GROUPING(D3.age) = 1 THEN 'subtotal Region ' || D3.countryName

    ELSE D3.age END AS Age,

  CASE

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

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

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

    ELSE to\_char(D3.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.id = F.subject

GROUP BY ROLLUP (d3.countryName, d3.age, d3.gender, d3.id)

ORDER BY d3.countryName, d3.age, d3.gender, d3.id;

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

**Tip procesare analitica**: clauza ROLLUP

**DDL SQL:**

DROP VIEW OLAP\_VIEW\_FHEALTH\_STATE\_REG\_OPINION;

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

SELECT

CASE

    WHEN GROUPING(C.countryName) = 1 THEN '{Total General}'

    ELSE C.countryName END AS countryName,

  CASE

    WHEN GROUPING(C.countryName) = 1 THEN ' '

    WHEN GROUPING(D4.idpacient) = 1 THEN 'subtotal regiune' || D4.idpacient

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

FROM OLAP\_DIM\_SUBJ\_REGION\_OPINION D4

    INNER JOIN OLAP\_DIM\_SUBJ\_SITE\_COUNTRY C ON d4.idpacient = C.subject

    INNER JOIN olap\_dim\_subj\_region\_opinion O ON C.subject = O.idpacient

GROUP BY ROLLUP (C.countryName, d4.idpacient)

ORDER BY C.countryName, d4.idpacient;

***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.idpacient, CV.countryName,

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

RANK() OVER(PARTITION BY PV.idpacient

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

FROM patients\_view PV

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

INNER JOIN countries\_view CV ON CV.id = PV.idpacient

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

GROUP BY PV.idpacient, CV.countryName

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(PV.idpacient) = 1 AND GROUPING(PV.Symptoms) = 0

THEN 'Subtotal simptom'

ELSE to\_char(PV.idpacient, 0)

END as idpacient,

CASE

WHEN GROUPING(PV.idpacient) = 0 AND GROUPING(PV.Symptoms) = 1

THEN 'Subtotal site'

ELSE PV.Symptoms

END AS Symptoms,

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

FROM patients\_view PV

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

GROUP BY GROUPING SETS(PV.idpacient, PV.Symptoms, (PV.idpacient, PV.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 P.subject, SUM(P.health\_state) AS health\_state

FROM patients\_view PV

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

GROUP BY P.subject

ORDER BY SUM(P.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.