BILAN SAE 1.04

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Étape 1
Étude du cas Titanic

Pendant cette étape nous avons étudié le cas Titanic dans son ensemble on a retracé l'histoire de ce navire de croisière de sa construction à son naufrage par un texte résumé puis dans un 2ème temps nous avons analysé la base de données fournie et enfin nous avons établie le SEA de tout l'ensemble.

Etape 2
Création et justification du SLR

Sur cette étape nous avons principalement travaillé sur le Schéma Relationnel de la base de données. Premièrement nous avons analysé la réglementation, pour justifier chaque relation, pour cela nous avons étudié les règles de base de données et on les a appliquées pour transformer la SEA en SLR. Deuxièmement nous avons effectué un test de conformité le Schéma Relationnel fourni dans le but d'implémenter le Schéma Relationnel dans la base dans PostgreSQL.

Etape 3
Requêtes

Durant cette dernière étape nous avons effectué des requêtes pour étudier différentes situations à partir des données pour mieux comprendre le naufrage. Les résultats obtenus nous on permit de comprendre les études scientifiques liées au naufrage comme celle qui nous apprend que la totalité des enfants a été placée dans une embarcation de sauvetage. Ainsi cette étape vient en conclusion en tant que source de donnée, nous pouvons grâce aux requêtes accéder à n'importe quelle information, à condition de bien savoir la formuler.

Requêtes SQL liées au projet:

- Nombre de survivants, respectivement de victimes parmi les passagers, selon leur classe (une requête par classe)
  La classe des passagers aurait-elle influencé leur survie ?

  SELECT count(Survived) AS Survivants, 323-count(Survived) AS Morts, PClass FROM PASSENGER WHERE PClass=1 AND Survived=1 GROUP BY passenger.PClass, passenger.survived;

```
 survivants | morts | pclass
------------+-------+--------
        200 |   123 |      1
(1 row)
```

  SELECT count(Survived) AS Survivants, 323-count(Survived) AS Morts, PClass FROM PASSENGER WHERE PClass=2 AND Survived=1 GROUP BY passenger.PClass, passenger.survived;

```
 survivants | morts | pclass
------------+-------+--------
        119 |   204 |      2
(1 row)
```

  SELECT count(Survived) AS Survivants, 709-count(Survived) AS Morts, PClass FROM PASSENGER WHERE PClass=3 AND Survived=1 GROUP BY passenger.PClass, passenger.survived;

```
 survivants | morts | pclass
------------+-------+--------
        181 |   528 |      3
(1 row)
```

  → La plupart des survivants étaient en première classe, le nombre de morts est très important dans la troisième classe, conclusion la classe a influencé la survie du passager.

- Nombre de survivants, respectivement de victimes parmi les passagers, selon leur catégorie (enfant, femme ou homme – une requête par catégorie) ?

```
SELECT count(Survived) AS Survivants, 1309-count(Survived) AS Morts, Sex FROM PASSENGER
WHERE Sex='male' AND Survived=1 AND Age>=12 GROUP BY  passenger.survived,
passenger.sex;
 survivants | morts | sex
------------+-------+------
          109 |  1200 | male
(1 row)

SELECT count(Survived) AS Survivants, 1309-count(Survived) AS Morts, Sex FROM PASSENGER
WHERE Sex='female' AND Survived=1 AND Age>=12 GROUP BY  passenger.survived,
passenger.sex;
 survivants | morts |  sex
------------+-------+--------
          267 |   1042 | female
(1 row)

SELECT count(Survived) AS Survivants, 110-count(Survived) AS Morts FROM PASSENGER
WHERE Age <12 AND Survived=1;
 survivants | morts
------------+-------
          51 |      59
(1 row)
```

- Il semble que les femmes s'en sont mieux sorties que les hommes…
  Cependant, peut-on garantir que les résultats obtenus sont compatibles avec le nombre réel de survivants (respectivement de victimes) ?

```
SELECT count(Survived) AS Survivants, 1309-count(Survived) AS Morts, Sex FROM PASSENGER
WHERE Sex='male' AND Survived=1 AND Age>=12 GROUP BY  passenger.survived,
passenger.sex;
 survivants | morts | sex
------------+-------+------
          109 |  1200 | male
(1 row)

SELECT count(Survived) AS Survivants, 1309-count(Survived) AS Morts, Sex FROM PASSENGER
WHERE Sex='female' AND Survived=1 AND Age>=12 GROUP BY  passenger.survived,
passenger.sex;
 survivants | morts |  sex
------------+-------+--------
          267 |   1042 | female
(1 row)
```

```
SELECT count(Survived) AS Survivants, 110-count(Survived) AS Morts FROM PASSENGER
WHERE Age <12 AND Survived=1;
 survivants | morts
------------+-------
         51 |     59
(1 row)
```

Pourquoi cet écart ???
→ Il y a des passagers dont l'âge n'est pas renseigné.

Même questions après rectification des données de la table PASSENGER:

- Nombre de survivants, respectivement de victimes parmi les passagers, selon leur classe (une requête par classe)
  La classe des passagers aurait-elle influencé leur survie ?

```
SELECT count(Survived) AS Survivants, 323-count(Survived) AS Morts, PClass FROM PASSENGER
WHERE PClass=1 AND Survived=1 GROUP BY passenger.PClass, passenger.survived;
 survivants | morts | pclass
------------+-------+--------
         200 |   123 |      1
(1 row)
```

```
SELECT count(Survived) AS Survivants, 323-count(Survived) AS Morts, PClass FROM PASSENGER
WHERE PClass=2 AND Survived=1 GROUP BY passenger.PClass, passenger.survived;
 survivants | morts | pclass
------------+-------+--------
         119 |   204 |      2
```

```
SELECT count(Survived) AS Survivants, 709-count(Survived) AS Morts, PClass FROM PASSENGER
WHERE PClass=3 AND Survived=1 GROUP BY passenger.PClass, passenger.survived;
 survivants | morts | pclass
------------+-------+--------
         181 |   528 |      3
```

- Nombre de survivants, respectivement de victimes parmi les passagers, selon leur catégorie (enfant, femme ou homme – une requête par catégorie) ?

```
SELECT count(Survived) AS Survivants, 1309-count(Survived) AS Morts, Sex FROM PASSENGER
WHERE Sex='male' AND Survived=1 AND Age>=12 GROUP BY  passenger.survived,
passenger.sex;
 survivants | morts | sex
------------+-------+------
         132 |  1177 | male
```

(1 row)

SELECT count(Survived) AS Survivants, 1309-count(Survived) AS Morts, Sex FROM PASSENGER WHERE Sex='female' AND Survived=1 AND Age>=12 GROUP BY passenger.survived, passenger.sex;

```
 survivants | morts |  sex
------------+-------+--------
        314 |   995 | female
(1 row)
```

SELECT count(Survived) AS Survivants, 110-count(Survived) AS Morts FROM PASSENGER WHERE Age <12 AND Survived=1;

```
 survivants | morts
------------+-------
         54 |    56
(1 row)
```

- Il semble que les femmes s'en sont mieux sorties que les hommes...

Cependant, peut-on garantir que les résultats obtenus sont compatibles avec le nombre réel de survivants (respectivement de victimes) ?

* SELECT count(Survived) AS Survivants, ((SELECT count(Survived) FROM PASSENGER WHERE Age <12 AND Survived=1) + (SELECT count(Survived) FROM PASSENGER WHERE Sex='male' AND Survived=1 AND Age>=12) + (SELECT count(Survived) FROM PASSENGER WHERE Sex='female' AND Survived=1 AND Age>=12)) AS TotSurvivants FROM PASSENGER WHERE Survived=1;

```
 survivants | totsurvivants
------------+---------------
         500 |           500
(1 row)
```

* SELECT count(Survived) AS Morts, ((SELECT count(Survived) FROM PASSENGER WHERE Age <12 AND Survived=0) + (SELECT count(Survived) FROM PASSENGER WHERE Sex='male' AND Survived=0 AND Age>=12) + (SELECT count(Survived) FROM PASSENGER WHERE Sex='female' AND Survived=0 AND Age>=12)) AS TotMorts FROM PASSENGER WHERE Survived=0;

```
 morts | totmorts
-------+----------
   809 |      809
(1 row)
```

- Taux de survivants dans les différentes catégories de passagers selon leur classe

- Taux de survivants par classe, toutes catégories confondues (enfants, femmes ou hommes)

  Class1

  SELECT Count(PClass)*100/323 AS TauxPassengerClass1,Survived FROM PASSENGER WHERE PClass = 1 AND Survived = 1 GROUP BY Survived;

```
 tauxpassengerclass1 | survived
---------------------+----------
                  61 |        1
```

  Class2

  SELECT Count(PClass)*100/277 AS TauxPassengerClass2,Survived FROM PASSENGER WHERE PClass = 2 AND Survived = 1 GROUP BY Survived ;

```
 tauxpassengerclass2 | survived
---------------------+----------
                  42 |        1
(1 row)
```

  Class3

  SELECT Count(PClass)*100/709 AS TauxPassengerClass3,Survived FROM PASSENGER WHERE PClass = 3 AND Survived = 1 GROUP BY Survived;

```
 tauxpassengerclass3 | survived
---------------------+----------
                  25 |        1
(1 row)
```

- Taux de survivants par classe dans la catégorie enfants

  Class1

  SELECT count(Age)*100/5 AS Enfant, PClass, Survived FROM PASSENGER WHERE Age <=12 AND PClass = 1 AND Survived = 1 GROUP BY Survived, PClass ;

```
 enfant | pclass | survived
--------+--------+----------
          80 |      1 |        1
(1 row)
```

  Class2

SELECT count(Age)*100/24 AS Enfant, PClass, Survived FROM PASSENGER WHERE Age <=12 AND PClass = 2 AND Survived = 1 GROUP BY Survived, PClass ;

```
 enfant | pclass | survived
--------+--------+----------
          100 |     2 |        1
(1 row)
```

Class3

SELECT count(Age)*100/81 AS Enfant, PClass, Survived FROM PASSENGER WHERE Age <=12 AND PClass = 3 AND Survived = 1 GROUP BY Survived, PClass ;

```
 enfant | pclass | survived
--------+--------+----------
          35 |      3 |        1
(1 row)
```

- Taux de survivants par classe dans la catégorie femmes

Class1

SELECT count(Age)*100/143 AS femme, PClass, Sex, Survived FROM PASSENGER WHERE PClass = 1 AND Age >12 AND Sex ='female' AND Survived = 1 GROUP BY PClass, Sex, Survived;

```
 femme | pclass |  sex   | survived
-------+--------+--------+----------
          97 |      1 | female |        1
(1 row)
```

Class2

SELECT count(Age)*100/5 AS Enfant, PClass, Survived FROM PASSENGER WHERE Age <=12 AND PClass = 1 AND Survived = 1 GROUP BY Survived, PClass ;

```
 enfant | pclass |  sex   | survived
-------+--------+--------+----------
          87 |      2 | female |        1
(1 row)
```

CLass3

SELECT count(Age)*100/180 AS femme, PClass, Sex, Survived FROM PASSENGER WHERE PClass = 3 AND Age >12 AND Sex ='female' AND Survived = 1 GROUP BY PClass, Sex, Survived;

```
 femme | pclass |  sex     | survived
--------+--------+--------+----------
          51 |      3 | female |        1
(1 row)
```

- Taux de survivants par classe dans la catégorie hommes

Class1

SELECT count(Age)*100/175 AS male, PClass, Sex, Survived FROM PASSENGER WHERE PClass = 1 AND Age >12 AND Sex ='male' AND Survived = 1 GROUP BY PClass, Sex, Survived;

```
male | pclass | sex  | survived
------+--------+------+----------
  32 |    1 | male |          1
(1 row)
```

Class2

SELECT count(Age)*100/160 AS male, PClass, Sex, Survived FROM PASSENGER WHERE PClass = 2 AND Age >12 AND Sex ='male' AND Survived = 1 GROUP BY PClass, Sex, Survived;

```
 male | pclass | sex  | survived
------+--------+------+----------
          8 |        2 | male |          1
(1 row)
```

Class3

SELECT count(Age)*100/448 AS male, PClass, Sex, Survived FROM PASSENGER WHERE PClass = 3 AND Age >12 AND Sex ='male' AND Survived = 1 GROUP BY PClass, Sex, Survived;

```
 male | pclass | sex  | survived
------+--------+------+----------
  13 |    3 | male |          1
```

(1 row)

- Taux de survivants parmi les rescapés (passagers ayant pu monter dans une embarcation de sauvetage)
    - Nombre total d'enfants et nombre d'enfants rescapés

      SELECT count(*) AS rescapés, (SELECT count(*) FROM PASSENGER WHERE Age<12) AS nbEnfants FROM PASSENGER, RESCUE WHERE PASSENGER.PassengerID=RESCUE.PassengerID AND Age<12;

      ```
       rescapés | nbenfants
      ----------+-----------
              53 |       105
      (1 row)
      ```

    - Nombre d'enfants qui ont survécu parmi les enfants qui ont été rescapés

      SELECT count(*) AS rescapés, (SELECT count(*) FROM PASSENGER WHERE Age<12) AS nbEnfants, (SELECT count(Survived) FROM PASSENGER WHERE Age<12 AND Survived=1) AS Survivants FROM PASSENGER, RESCUE WHERE PASSENGER.PassengerID=RESCUE.PassengerID AND Age<12;

      ```
       rescapés | nbenfants | survivants
      ----------+-----------+------------
              53 |       105 |         54
      (1 row)
      ```

    - Pour chaque classe de passagers : nombre d'enfants qui ont survécu parmi les enfants rescapés

      Class 1

      SELECT count(*) AS rescapés, (SELECT count(*) FROM PASSENGER WHERE Age<12) AS nbEnfants, (SELECT count(Survived) FROM PASSENGER WHERE Age<12 AND Survived=1) AS Survivants FROM PASSENGER, RESCUE WHERE PASSENGER.PassengerID=RESCUE.PassengerID AND Age<12 AND PClass=1;

      ```
       rescapés | nbenfants | survivants
      ----------+-----------+------------
              4 |         5 |          4
      (1 row)
      ```

      Class 2

      SELECT count(*) AS rescapés, (SELECT count(*) FROM PASSENGER WHERE Age<12) AS nbEnfants, (SELECT count(Survived) FROM PASSENGER WHERE Age<12 AND

Survived=1) AS Survivants FROM PASSENGER, RESCUE WHERE PASSENGER.PassengerID=RESCUE.PassengerID AND Age<12 AND PClass=2;

```
 rescapés | nbenfants | survivants
----------+-----------+------------
          22 |       22 |       22
(1 row)
```

Class 3

SELECT count(*) AS rescapés, (SELECT count(*) FROM PASSENGER WHERE Age<12) AS nbEnfants, (SELECT count(Survived) FROM PASSENGER WHERE Age<12 AND Survived=1) AS Survivants FROM PASSENGER, RESCUE WHERE PASSENGER.PassengerID=RESCUE.PassengerID AND Age<12 AND PClass=3;

```
 rescapés | nbenfants | survivants
----------+-----------+------------
          27 |       78 |       28
(1 row)
```

- Taux de rescapés parmi les passagers

SELECT count(*)*100/1309 AS TauxRescapés FROM PASSENGER, RESCUE WHERE PASSENGER.PassengerID=RESCUE.PassengerID;

```
 tauxrescapés
--------------
           37
(1 row)
```

- Nombre de rescapés par catégorie de passager (enfant, femme ou homme)

ENFANTS

SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID = B.PassengerID AND Age < 12;

```
count
-------
           53
(1 row)
```

HOMMES

SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID = B.PassengerID AND Sex ='male';

```
 count
-------
   172
(1 row)
```

FEMMES

```
SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Sex ='female';
 count
-------
   318
```

- Nombre de survivants par catégorie de rescapés (enfant, femme ou homme)

ENFANTS

```
SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Age < 12 And Survived = 1;
 count
-------
          53
(1 row)
```

HOMMES

```
SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Sex ='male' AND Survived = 1;
 count
-------
   157
(1 row)
```

FEMMES

```
SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Sex ='female' AND Survived = 1;
 count
-------
   316
(1 row)
```

- Pour chaque classe de passager, nombre d'enfants, nombre de femmes et nombre d'hommes qui ont survécu parmi les rescapés

Class 1

ENFANTS

```
SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Age < 12 And Survived = 1 AND PClass = 1;
 count
-------
          4
(1 row)
```

HOMMES

```
SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Sex ='male' AND Survived = 1 AND PClass = 1;
 count
-------
          60
(1 row)
```

FEMMES

```
SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Sex ='female' AND Survived = 1 AND PClass = 1;
 count
-------
  135
(1 row)
```

Class 2

ENFANTS

```
 SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Age < 12  AND Survived = 1 AND PClass = 2;
 count
-------
          22
(1 row)
```

HOMMES

```
 SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Sex='male'  AND Survived = 1 AND PClass = 2;
 count
-------
          25
(1 row)
```

FEMMES

```
 SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Sex='female'  AND Survived = 1 AND PClass = 2;
 count
-------
          86
(1 row)
```

Class 3

ENFANTS

```
SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Age <12  AND Survived = 1 AND PClass = 3;
 count
-------
          27
(1 row)
```

HOMMES

```
SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Sex='male' AND Survived = 1 AND PClass = 3;
 count
-------
          72
(1 row)
```

FEMMES

```
SELECT count(*) FROM PASSENGER A, RESCUE B WHERE A.PassengerID =
B.PassengerID AND Sex='female' AND Survived = 1 AND PClass = 3;
 count
-------
          95
(1 row)
```