

INFORME DESARROLLO PRUEBA TECNICA DATA ENGINEER

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El siguiente informe explica los pasos que se siguieron para el desarrollo de la prueba tecnica

Paso 1

Lo primero fue realizar la descarga del archivo en formato CSV desde la URL entregada

Link data: <https://data.sfgov.org/Public-Safety/Fire-Incidents/wr8u-xric>

Paso 2

Una vez con los datos desacargados , se comenzo con el analisis de estos para elegir la tecnologia a utilizar y dar respuesta a los requerimientos solicitados.

Tecnologias ocupadas:

- Se instala Maquina Virtual Local en Virtual Box con sistema operativo Oracle Linux Server 7
- Se instala Oracle Database 19.3 Linux x86-64 free edition
- Se instala Oracle SQL Developer
- Se configura el entorno para poder ejecutar las queries desde ambiente local (TNSName, Listener , Creacion de usuarios, entre otro)

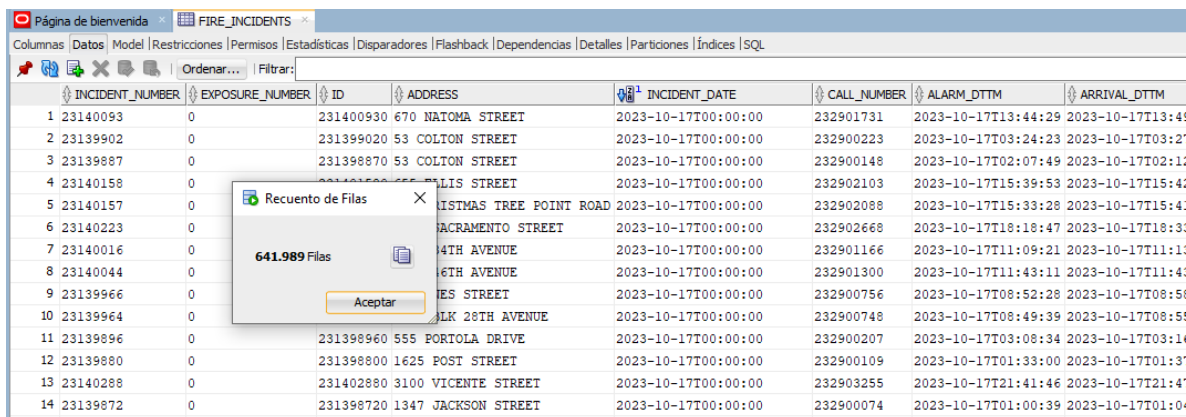
Paso 3

Ya con el entorno local configurado , para simular la base de datos que albergaria el DataWarehouse, se comienza a realizar la carga de los datos descargados a la tabla FIRE_INCIDENTS.

Total de filas Descargadas: 641.989 Sin incluir la cabecera

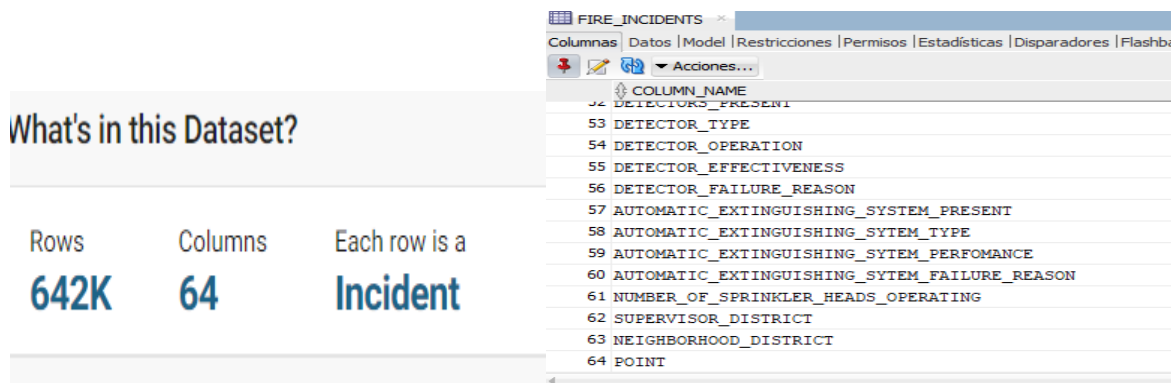
Columna	Contenido
A	641988
B	23118399,0,23118399,78 OTSEGO AVENUE,2023-09-04T00:00:00,232471321,2023-09-04T13:16:34,2023-09-04T13:21:41,2023-09-04T13:34:00, San Francisco,94112,809,15,8275,1,5,1,2,0,0,0,0,0,0,0,1,551 Assist police or other governmental agen
C	641989
D	23118507,0,23118507,333 MAIN STREET,2023-09-04T00:00:00,232472154,2023-09-04T17:23:24,2023-09-04T17:27:47,2023-09-04T18:06:45, San Francisco,94105,803,35,2117,1,5,0,0,0,0,0,0,0,0,0,1,353 Removal of victim(s) from stalled elevator,
E	641990
F	23121990,0,23121990,1223 FITZGERALD AVENUE,2023-09-11T00:00:00,232542942,2023-09-11T19:26:03,2023-09-11T19:30:47,2023-09-11T19:42:28, San Francisco,94124,810,17,6614,3,10,0,0,0,0,0,0,0,0,0,1,735 Alarm system sounded due to ma
G	641991
H	23124924,0,23124924,1300 VAN NESS AVENUE,2023-09-17T00:00:00,232601774,2023-09-17T14:50:34,2023-09-17T14:53:21,2023-09-17T15:05:33, San Francisco,94109,804,03,3156,3,10,0,0,0,0,0,0,0,0,0,1,735 Alarm system sounded due to malf
I	641992
J	23128356,0,23128356,2120 BROADWAY,2023-09-24T00:00:00,232672043,2023-09-24T16:16:31,2023-09-24T16:19:33,2023-09-24T16:33:09, San Francisco,94123,804,38,3464,3,10,0,0,0,0,0,0,0,0,0,1,745 Alarm system activation, no fire - uninter
K	641993
L	23133632,0,23133632,814 VAN NESS AVENUE,2023-10-04T00:00:00,232772984,2023-10-04T18:37:57,2023-10-04T18:40:56,2023-10-04T18:54:51, San Francisco,94102,802,03,3163,8,29,1,2,1,2,0,0,0,0,0,1,743 Smoke detector activation, no fire-
M	641994
N	
O	
P	
Q	
R	

Total de filas cargadas en tabla FIRE_INCIDENTS: 641.989



INCIDENT_NUMBER	EXPOSURE_NUMBER	ID	ADDRESS	INCIDENT_DATE	CALL_NUMBER	ALARM_DTTM	ARRIVAL_DTTM
1	23140093	0	231400930 670 NATOMA STREET	2023-10-17T00:00:00	232901731	2023-10-17T13:44:29	2023-10-17T13:44:29
2	23139902	0	231399020 53 COLTON STREET	2023-10-17T00:00:00	232900223	2023-10-17T03:24:23	2023-10-17T03:24:23
3	23139887	0	231398870 53 COLTON STREET	2023-10-17T00:00:00	232900148	2023-10-17T02:07:49	2023-10-17T02:11:49
4	23140158	0	231401580 53 COLTON STREET	2023-10-17T00:00:00	232902103	2023-10-17T15:39:53	2023-10-17T15:44:29
5	23140157	0	231401570 53 COLTON STREET	2023-10-17T00:00:00	232902088	2023-10-17T15:33:28	2023-10-17T15:44:29
6	23140223	0	231402230 53 COLTON STREET	2023-10-17T00:00:00	232902668	2023-10-17T18:18:47	2023-10-17T18:33:28
7	23140016	0	231400160 53 COLTON STREET	2023-10-17T00:00:00	232901166	2023-10-17T11:09:21	2023-10-17T11:11:49
8	23140044	0	231400440 53 COLTON STREET	2023-10-17T00:00:00	232901300	2023-10-17T11:43:11	2023-10-17T11:44:29
9	23139966	0	231399660 53 COLTON STREET	2023-10-17T00:00:00	232900756	2023-10-17T08:52:28	2023-10-17T08:55:51
10	23139964	0	231399640 53 COLTON STREET	2023-10-17T00:00:00	232900748	2023-10-17T08:49:39	2023-10-17T08:55:51
11	23139896	0	231398960 555 PORTOLA DRIVE	2023-10-17T00:00:00	232900207	2023-10-17T03:08:34	2023-10-17T03:14:29
12	23139880	0	231398800 1625 POST STREET	2023-10-17T00:00:00	232900109	2023-10-17T01:33:00	2023-10-17T01:33:00
13	23140288	0	231402880 3100 VICENTE STREET	2023-10-17T00:00:00	232903255	2023-10-17T21:41:46	2023-10-17T21:44:29
14	23139872	0	231398720 1347 JACKSON STREET	2023-10-17T00:00:00	232900074	2023-10-17T01:00:39	2023-10-17T01:00:39

Total de columnas descargadas y creadas: 64 columnas



COLUMN_NAME
52 DETECTOR_PRESENT
53 DETECTOR_TYPE
54 DETECTOR_OPERATION
55 DETECTOR_EFFECTIVENESS
56 DETECTOR_FAILURE_REASON
57 AUTOMATIC_EXTINGUISHING_SYSTEM_PRESENT
58 AUTOMATIC_EXTINGUISHING_SYSTEM_TYPE
59 AUTOMATIC_EXTINGUISHING_SYSTEM_PERFORMANCE
60 AUTOMATIC_EXTINGUISHING_SYSTEM_FAILURE_REASON
61 NUMBER_OF_SPRINKLER_HEADS_OPERATING
62 SUPERVISOR_DISTRICT
63 NEIGHBORHOOD_DISTRICT
64 POINT

Con estos nos aseguramos de cumplir el requerimiento

“La copia del conjunto de datos en el data Warehouse debe reflejar **exactamente el estado actual de los datos en la fuente.”**

Paso 4

Ya con la data en nuestro entorno local, comenzamos con la creacion de las dimensiones y FT que fueron solicitadas, para dar respuesta al requerimiento:

“El equipo de business intelligence necesita ejecutar consultas que agreguen estos incidentes a lo largo de las siguientes dimensiones: período de tiempo, distrito, batallón.”

Dimension Tiempo

Se crea una dimension tiempo a partir del perioso 01/01/2003 hasta 30/01/24 , esto solo pensando en los datos ingresados para trabajar.

```
-----  
-- DDL for Table DIM_TIEMPO  
-----  
  
CREATE TABLE "HR"."DIM_TIEMPO"  
(  
  "ID_TIEMPO" NUMBER,  
  "FECHA" DATE,  
  "DESCRIPCION_DIA" VARCHAR2(36 BYTE) COLLATE "USING_NLS_COMP",  
  "NUMERO_DIA_SEMANA" VARCHAR2(1 BYTE) COLLATE "USING_NLS_COMP",  
  "DIA" VARCHAR2(2 BYTE) COLLATE "USING_NLS_COMP",  
  "ID_MES" VARCHAR2(17 BYTE) COLLATE "USING_NLS_COMP",  
  "DÍAS_DEL_MES" NUMBER,  
  "TERMINO_MES" DATE,  
  "MES_AÑO" VARCHAR2(45 BYTE) COLLATE "USING_NLS_COMP",  
  "DESCRIPCION_MES" VARCHAR2(40 BYTE) COLLATE "USING_NLS_COMP",  
  "MES" VARCHAR2(2 BYTE) COLLATE "USING_NLS_COMP",  
  "SEMESTRE_ID" VARCHAR2(7 BYTE) COLLATE "USING_NLS_COMP",  
  "DURACION_DIAS_SEMESTRE" NUMBER,  
  "FECHA_TERMINO_SEMESTRE" DATE,  
  "NUMERO_SEMESTRE" NUMBER,  
  "AÑO" VARCHAR2(4 BYTE) COLLATE "USING_NLS_COMP",  
  "CANT_DIAS_AÑO" NUMBER,  
  "FECHA_TERMINO_AÑO" DATE  
) DEFAULT COLLATION "USING_NLS_COMP" SEGMENT CREATION IMMEDIATE  
PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255  
NOCOMPRESS LOGGING  
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645  
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1  
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)  
TABLESPACE "USERS" ;
```

Dimension Distrito

Para la creacion de esta dimension , primero se creo una sequencia que se utilizara como PK de la tabla. Luego se extrae desde la tabla FIRE_INCIDENTS los distintos campos que contendra la dimension.

- Sequence Distrito

```
-----  
-- DDL for Sequence SQ_DISTrito  
-----  
  
CREATE SEQUENCE "HR"."SQ_DISTrito" MINVALUE 1 MAXVALUE 1000 INCREMENT BY 1 START WITH 43 NOCACHE NOORDER NOCYCLE NOKEEP NOSCALE GLOBAL ;
```

```

-----
-- DDL for Table DIM_DISTrito
-----

CREATE TABLE "HR"."DIM_DISTrito"
(
  "ID_DISTrito" NUMBER,
  "DISTrito" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP"
) DEFAULT COLLATION "USING_NLS_COMP" SEGMENT CREATION IMMEDIATE
PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
NOCOMPRESS LOGGING
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "USERS" ;

```

Dimension Battalion

Para la creacion de esta dimension , primero se creo una sequencia que se utilizara como PK de la tabla. Luego se extrae desde la tabla FIRE_INCIDENTS los distintos cmapos que contendra la dimension.

- Sequence Battalion

```

-----
-- DDL for Sequence SQ_BATTALION
-----

CREATE SEQUENCE "HR"."SQ_BATTALION" MINVALUE 1 MAXVALUE 1000 INCREMENT BY 1 START WITH 12 NOCACHE NOORDER NOCYCLE NOKEEP NOSCALE GLOBAL ;
-----

-- DDL for Table DIM_BATTALION
-----

CREATE TABLE "HR"."DIM_BATTALION"
(
  "ID_BATTALION" NUMBER,
  "BATTALION" VARCHAR2(30 BYTE) COLLATE "USING_NLS_COMP"
) DEFAULT COLLATION "USING_NLS_COMP" SEGMENT CREATION IMMEDIATE
PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
NOCOMPRESS LOGGING
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "USERS" ;

```

Tabla de Hecho FT FIRE INCIDENTS

Para la creacion de la FT se debe hacer un analisis de los campos que contiene la tabla FIRE_INCIDENTS y los cruces existentes con las dimensiones ya creadas para asegurar el correcto desempeño.

```

CREATE TABLE "HR"."FT_FIRE_INCIDENTS"
(
  "ID" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "ID_TIEMPO" NUMBER,
  "ID_DISTRITO" NUMBER,
  "ID_BATTALION" NUMBER,
  "INCIDENT_NUMBER" NUMBER,
  "EXPOSURE_NUMBER" NUMBER,
  "ADDRESS" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "CALL_NUMBER" NUMBER,
  "ALARM_DTTM" VARCHAR2(19 BYTE) COLLATE "USING_NLS_COMP",
  "ARRIVAL_DTTM" VARCHAR2(19 BYTE) COLLATE "USING_NLS_COMP",
  "CLOSE_DTTM" VARCHAR2(19 BYTE) COLLATE "USING_NLS_COMP",
  "ZIPCODE" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "STATION_AREA" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "BOX" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "SUPPRESSION_UNITS" NUMBER,
  "SUPPRESSION_PERSONNEL" NUMBER,
  "EMS_UNITS" NUMBER,
  "EMS_PERSONNEL" NUMBER,
  "OTHER_UNITS" NUMBER,
  "OTHER_PERSONNEL" NUMBER,
  "FIRST_UNIT_ON_SCENE" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "ESTIMATED_PROPERTY_LOSS" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "ESTIMATED_CONTENTS_LOSS" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "FIRE_FATALITIES" NUMBER,
  "FIRE_INJURIES" NUMBER,
  "CIVILIAN_FATALITIES" NUMBER,
  "CIVILIAN_INJURIES" NUMBER,
  "NUMBER_OF_ALARMS" NUMBER,
  "PRIMARY_SITUATION" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "MUTUAL_AID" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "ACTION_TAKEN_PRIMARY" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "ACTION_TAKEN_SECONDARY" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "ACTION_TAKEN_OTHER" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "DETECTOR_ALERTED_OCCUPANTS" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "PROPERTY_USE" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "AREA_OF_FIRE_ORIGIN" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "IGNITION_CAUSE" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "IGNITION_FACTOR_PRIMARY" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "IGNITION_FACTOR_SECONDARY" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "HEAT_SOURCE" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "ITEM_FIRST_IGNITED" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "HUMAN_FACTORS_ASSOCIATED_WITH_IGNITION" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "STRUCTURE_TYPE" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "STRUCTURE_STATUS" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "FLOOR_OF_FIRE_ORIGIN" NUMBER,
  "FIRE_SPREAD" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "NO_FLAME_SPREAD" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "NUMBER_OF_FLOORS_WITH_MINIMUM_DAMAGE" NUMBER,
  "NUMBER_OF_FLOORS_WITH_SIGNIFICANT_DAMAGE" NUMBER,
  "NUMBER_OF_FLOORS_WITH_HEAVY_DAMAGE" NUMBER,
  "NUMBER_OF_FLOORS_WITH_EXTREME_DAMAGE" NUMBER,
  "DETECTORS_PRESENT" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "DETECTOR_TYPE" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "DETECTOR_OPERATION" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "DETECTOR_EFFECTIVENESS" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "DETECTOR_FAILURE_REASON" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "AUTOMATIC_EXTINGUISHING_SYSTEM_PRESENT" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "AUTOMATIC_EXTINGUISHING_SYSTEM_TYPE" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "AUTOMATIC_EXTINGUISHING_SYSTEM_PERFORMANCE" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "AUTOMATIC_EXTINGUISHING_SYSTEM_FAILURE_REASON" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "NUMBER_OF_SPRINKLER_HEADS_OPERATING" NUMBER,
  "SUPERVISOR_DISTRICT" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "NEIGHBORHOOD_DISTRICT" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP",
  "POINT" VARCHAR2(300 BYTE) COLLATE "USING_NLS_COMP"
) DEFAULT COLLATION "USING_NLS_COMP" SEGMENT CREATION IMMEDIATE
PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
NOCOMPRESS LOGGING
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "USERS" ;

```

Paso 5

Una vez creadas las tablas para las dimensiones y FT , se realiza la creacion de objetos que aseguren un buen rendimiento y valores unicos.

```
-----
-- DDL for Index DIM_BATTALION_PK
-----

CREATE UNIQUE INDEX "HR"."DIM_BATTALION_PK" ON "HR"."DIM_BATTALION" ("ID_BATTALION")
PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "USERS" ;

-----
-- DDL for Index DIM_DISTrito_PK
-----

CREATE UNIQUE INDEX "HR"."DIM_DISTrito_PK" ON "HR"."DIM_DISTrito" ("ID_DISTrito")
PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "USERS" ;

-----
-- Constraints for Table DIM_BATTALION
-----

ALTER TABLE "HR"."DIM_BATTALION" MODIFY ("ID_BATTALION" NOT NULL ENABLE);
ALTER TABLE "HR"."DIM_BATTALION" ADD CONSTRAINT "DIM_BATTALION_PK" PRIMARY KEY ("ID_BATTALION")
USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "USERS" ENABLE;

-----
-- Constraints for Table DIM_DISTrito
-----

ALTER TABLE "HR"."DIM_DISTrito" MODIFY ("ID_DISTrito" NOT NULL ENABLE);
ALTER TABLE "HR"."DIM_DISTrito" ADD CONSTRAINT "DIM_DISTrito_PK" PRIMARY KEY ("ID_DISTrito")
USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "USERS" ENABLE;

-----
-- Constraints for Table FT_FIRE_INCIDENTS
-----

ALTER TABLE "HR"."FT_FIRE_INCIDENTS" MODIFY ("ID_DISTrito" NOT NULL ENABLE);
ALTER TABLE "HR"."FT_FIRE_INCIDENTS" MODIFY ("ID_BATTALION" NOT NULL ENABLE);
```

Paso 6

Ahora que tenemos el ambiente configurado y creada las dimensiones con la FT, procedemos a crear el paquete de carga **CARGA** que llenara de datos a las dimensiones y FT.

```
-----  
-- DDL for Package CARGA  
-----  
  
CREATE OR REPLACE EDITIONABLE PACKAGE "HR"."CARGA" AS  
    PROCEDURE DIMENSIONES;  
    PROCEDURE FT_FIRE_INCIDENTS;  
    /* TODO enter package declarations (types, exceptions, methods etc) here */  
  
END CARGA;  
  
/
```

El cuerpo del paquete incluye los procedimientos DIMENSIONES Y FT_FIRE_INCIDENTS, los cuales estan encargados del llenado tanto de las dimensiones como de la FT. El procedimiento FT_FIRE_INCIDENTS incluye transformaciones que fueron necesarias para depurar datos y realizar el calculos de forma correcta. El procedimiento de Dimensiones incluye distinct para asegurar valores unicos en las dimensiones

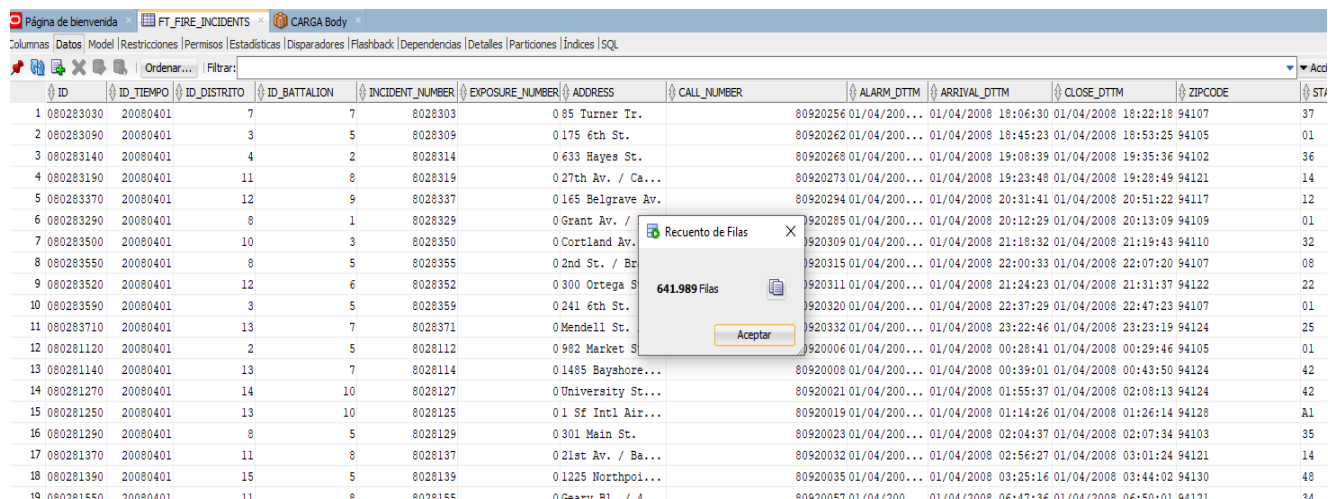
Acontinuacion puede ver un ejemplo de llenado de estos procedimientos.

Ejm injeata de datos

```
-----DIM_BATTALION-----  
  
EXECUTE IMMEDIATE '  
    INSERT INTO DIM_BATTALION (id_battalion, battalion)  
    WITH DATA AS  
    (  
    SELECT DISTINCT  
    NVL(BATTALION, ''SIN INFORMACION'') AS BATTALION  
    FROM FIRE_INCIDENTS  
    WHERE NVL(BATTALION, ''SIN INFORMACION'') NOT IN (SELECT BATTALION FROM dim_battalion)  
    )  
    SELECT SQ_BATTALION.NEXTVAL, BATTALION  
    FROM DATA  
    ';  
  
----- DIM DISTRITO -----  
  
EXECUTE IMMEDIATE '  
  
    INSERT INTO DIM_DISTRITO (ID_DISTRITO, DISTRITO)  
    WITH DATA AS  
    (  
    SELECT DISTINCT  
    NVL(NEIGHBORHOOD_DISTRICT, ''SIN INFORMACION'') AS NEIGHBORHOOD_DISTRICT  
    FROM FIRE_INCIDENTS  
    WHERE NVL(NEIGHBORHOOD_DISTRICT, ''SIN INFORMACION'') NOT IN (SELECT DISTRITO FROM DIM_DISTRITO)  
    )  
    SELECT SQ_DISTRITO.NEXTVAL, NEIGHBORHOOD_DISTRICT  
    FROM DATA  
    ';
```

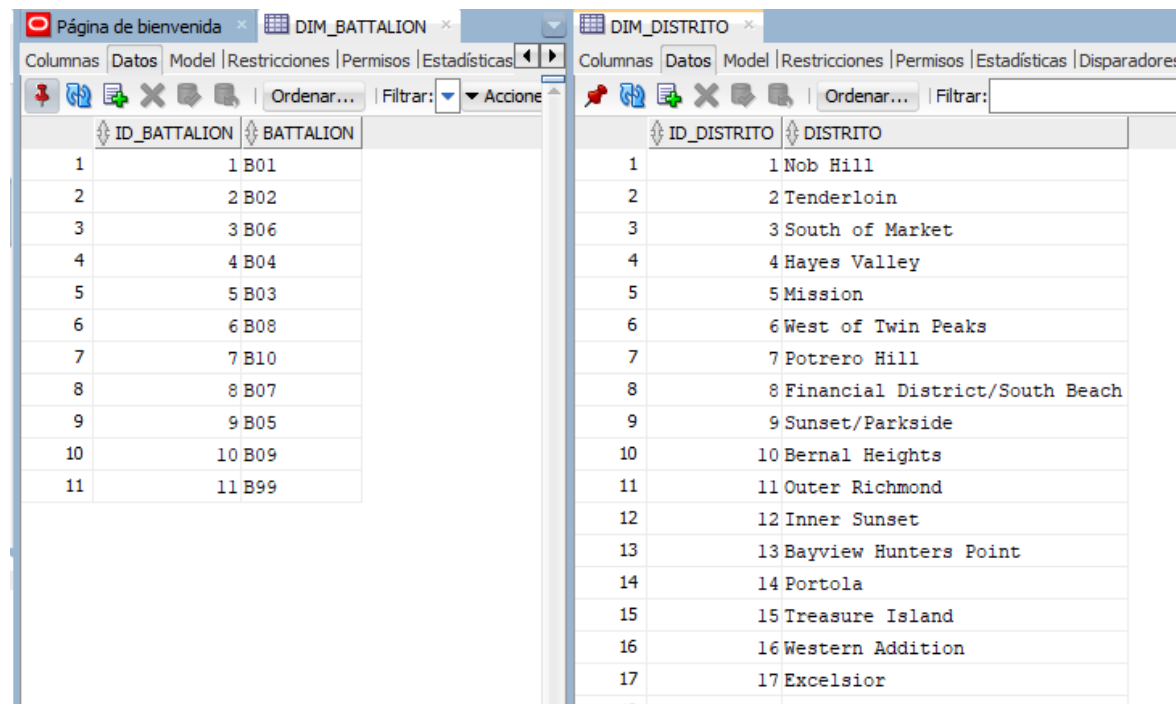
NOTA: si quiere ver en mas detalle estos procedimientos favor revisar el archivo
Script_solucion.sql , que se adjunta junto a este informe.

Podemos ver la tabla **FT_FIRE_INCIDENTS** con los datos ya cargados (641.989) y con sus respectivos cruces y claves foraneas



ID	ID_TIEMPO	ID_DISTRITO	ID_BATTALION	INCIDENT_NUMBER	EXPOSURE_NUMBER	ADDRESS	CALL_NUMBER	ALARM_DTTM	ARRIVAL_DTTM	CLOSE_DTTM	ZIPCODE	ST
1	080283030	20080401	7	7	8028303	0 85 Turner Tr.		80920256 01/04/200...	01/04/2008 18:06:30	01/04/2008 18:22:18	94107	37
2	080283090	20080401	3	5	8028309	0 175 6th St.		80920262 01/04/200...	01/04/2008 18:45:23	01/04/2008 18:53:25	94105	01
3	080283140	20080401	4	2	8028314	0 633 Hayes St.		80920268 01/04/200...	01/04/2008 19:08:39	01/04/2008 19:35:36	94102	36
4	080283190	20080401	11	8	8028319	0 27th Av. / Ca...		80920273 01/04/200...	01/04/2008 19:23:48	01/04/2008 19:28:49	94121	14
5	080283370	20080401	12	9	8028337	0 165 Belgrave Av.		80920294 01/04/200...	01/04/2008 20:31:41	01/04/2008 20:51:22	94117	12
6	080283290	20080401	8	1	8028329	0 Grant Av. /		80920285 01/04/200...	01/04/2008 20:12:29	01/04/2008 20:13:09	94109	01
7	080283500	20080401	10	3	8028350	0 Cortland Av.		80920309 01/04/200...	01/04/2008 21:18:32	01/04/2008 21:19:43	94110	32
8	080283550	20080401	8	5	8028355	0 2nd St. / Br		80920315 01/04/200...	01/04/2008 22:00:33	01/04/2008 22:07:20	94107	08
9	080283520	20080401	12	6	8028352	0 300 Ortega S		80920311 01/04/200...	01/04/2008 21:24:23	01/04/2008 21:31:37	94122	22
10	080283590	20080401	3	5	8028359	0 241 6th St.		80920320 01/04/200...	01/04/2008 22:37:29	01/04/2008 22:47:23	94107	01
11	080283710	20080401	13	7	8028371	0 Mendell St.		80920332 01/04/200...	01/04/2008 23:22:46	01/04/2008 23:23:19	94124	25
12	080281120	20080401	2	5	8028112	0 982 Market S		80920006 01/04/200...	01/04/2008 00:28:41	01/04/2008 00:29:46	94105	01
13	080281140	20080401	13	7	8028114	0 1485 Bayshore...		80920008 01/04/200...	01/04/2008 00:39:01	01/04/2008 00:43:50	94124	42
14	080281270	20080401	14	10	8028127	0 University St...		80920021 01/04/200...	01/04/2008 01:55:37	01/04/2008 02:08:13	94124	42
15	080281250	20080401	13	10	8028125	0 1 Sf Intl Air...		80920019 01/04/200...	01/04/2008 01:14:26	01/04/2008 01:26:14	94128	41
16	080281290	20080401	8	5	8028129	0 301 Main St.		80920023 01/04/200...	01/04/2008 02:04:37	01/04/2008 02:07:34	94103	35
17	080281370	20080401	11	8	8028137	0 21st Av. / Ba...		80920032 01/04/200...	01/04/2008 02:56:27	01/04/2008 03:01:24	94121	14
18	080281390	20080401	15	5	8028139	0 1225 Northpoi...		80920035 01/04/200...	01/04/2008 03:25:16	01/04/2008 03:44:02	94130	48
19	080281550	20080401	11	8	8028155	0 Grand Pt. / 4		80920057 01/04/200...	01/04/2008 06:47:36	01/04/2008 06:50:01	94121	44

Las Dimensiones **DIM_BATTALION** y **DIM_DISTRITO**



ID_BATTALION	BATTALION
1	1 B01
2	2 B02
3	3 B06
4	4 B04
5	5 B03
6	6 B08
7	7 B10
8	8 B07
9	9 B05
10	10 B09
11	11 B99

ID_DISTRITO	DISTRITO
1	1 Nob Hill
2	2 Tenderloin
3	3 South of Market
4	4 Hayes Valley
5	5 Mission
6	6 West of Twin Peaks
7	7 Potrero Hill
8	8 Financial District/South Beach
9	9 Sunset/Parkside
10	10 Bernal Heights
11	11 Outer Richmond
12	12 Inner Sunset
13	13 Bayview Hunters Point
14	14 Portola
15	15 Treasure Island
16	16 Western Addition
17	17 Excelsior

Paso 7

Ya con el paquete de carga funcionando y los procedimientos ejecutandose de forma exitosa, procedemos a crear un JOB que ejecute estos procedimientos cada dia a las 06:00 AM, para dar respuesta al requerimiento:

“Para este ejercicio, suponga que el conjunto de datos se actualiza diariamente en la fuente.”

```
-----  
-- JOB DE CARGA PROGRAMADO PARA EJECUCION TODOS LOS DIAS 06:00 AM  
-----
```

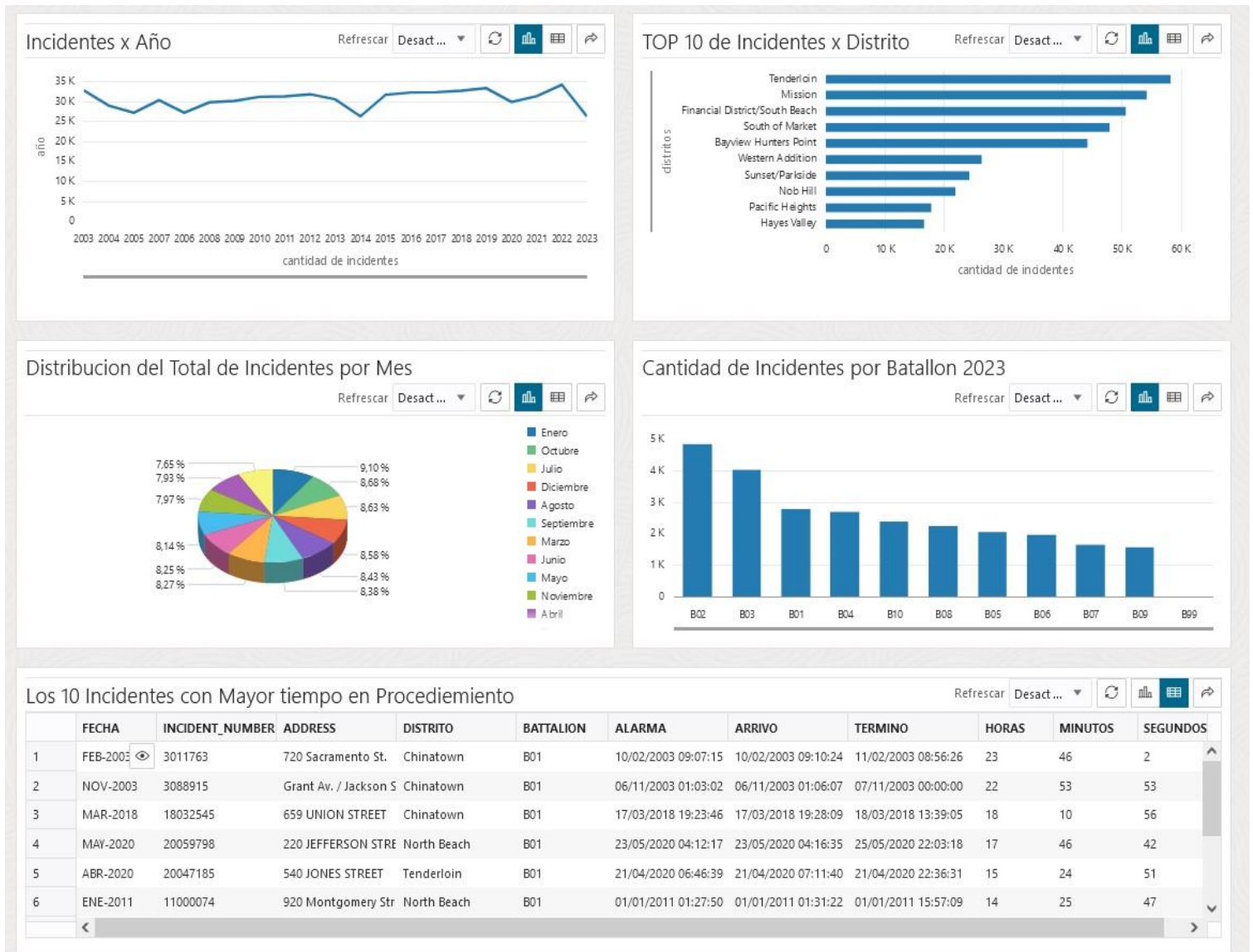
```
DECLARE
```

```
BEGIN
```

```
    DBMS_SCHEDULER.CREATE_JOB (  
        job_name => '"HR"."CARGA MODELO"',  
        job_type => 'PLSQL_BLOCK',  
        job_action => 'BEGIN  
  
CARGA.DIMENSIONES();  
CARGA.FT_FIRE_INCIDENTS();  
  
END;',  
        number_of_arguments => 0,  
        start_date => TO_TIMESTAMP_TZ('2023-10-22 06:00:00.000000000 AMERICA/SANTIAGO','YYYY-MM-DD HH24:MI:SS.FF TZR'),  
        repeat_interval => 'FREQ=DAILY;BYTIME=060000;BYDAY=MON,TUE,WED,THU,FRI,SAT,SUN',  
        end_date => NULL,  
        enabled => FALSE,  
        auto_drop => FALSE,  
        comments => '');  
  
    DBMS_SCHEDULER.SET_ATTRIBUTE(  
        name => '"HR"."CARGA MODELO"',  
        attribute => 'store_output', value => TRUE);  
    DBMS_SCHEDULER.SET_ATTRIBUTE(  
        name => '"HR"."CARGA MODELO"',  
        attribute => 'logging_level', value => DBMS_SCHEDULER.LOGGING_OFF);  
END;
```

Paso 8

En este paso corresponde comprobar que los datos este funcionando bien y que esten bien cargados dentro de las tablas, para eso se realizo un dashboard con algunos analisis que posiblemente el equipo de business intelligence pueda desarrollar.



Querys utilizadas en los graficos:

Incidentes por año

```
select
dim.anho
,count(ft.id)

from
ft_fire_incidents ft,
dim_tiempo dim

where
ft.id_tiempo = dim.id_tiempo
group by dim.anho
```

TOP 10 incidentes x Distrito

```
select * from (

select
dis.districto
,count(ft.id_districto)

from
ft_fire_incidents ft,
dim_districto dis

where
ft.id_districto = dis.id_districto
group by dis.districto
order by count(ft.id_districto) desc
)
where rownum <= 10
```

Distribucion del Total de Incidentes por Mes

```
select
dim.descripcion_mes
,count(ft.id)

from
ft_fire_incidents ft,
dim_tiempo dim

where
ft.id_tiempo = dim.id_tiempo
group by dim.descripcion_mes
order by count(ft.id) desc
```

Cantidad de incidentes por batallon

```
select
dim.battalion
,count(ft.id) as cantidad

from
ft_fire_incidents ft,
dim_battalion dim,
dim_tiempo tiempo

where
ft.id_battalion = dim.id_battalion
and ft.id_tiempo = tiempo.id_tiempo
and tiempo.anho = 2023
group by dim.battalion
order by count(ft.id) desc
```

TOP 10 Incientes con Mayor Tiempo en Procedimiento

```
SELECT
T.ID_MES AS FECHA
,A.INCIDENT_NUMBER
,A.ADDRESS
,A.DISTRITO
,B.BATTALION
,A.ALARM_DTM AS ALARMA
,A.ARRIVAL_DTM AS ARRIVO
,A.CLOSE_DTM AS TERMINO
,A.DIFERENCIA_HORAS AS HORAS
,A.DIFERENCIA_MINUTOS AS MINUTOS
,A.DIFERENCIA_SEGUNDOS AS SEGUNDOS

FROM
] (
SELECT
ID_TIEMPO
,ID_BATTALION
,INCIDENT_NUMBER
,ADDRESS
,NEIGHBORHOOD_DISTRICT AS DISTRITO
,ALARM_DTM
,ARRIVAL_DTM
,CLOSE_DTM
,TRUNC(MOD((TO_DATE(CLOSE_DTM, 'DD.MM.YYYY HH24:MI:SS') - TO_DATE(ARRIVAL_DTM, 'DD.MM.YYYY HH24:MI:SS')) * 24, 24)) DIFERENCIA_HORAS
,TRUNC(MOD((TO_DATE(CLOSE_DTM, 'DD.MM.YYYY HH24:MI:SS') - TO_DATE(ARRIVAL_DTM, 'DD.MM.YYYY HH24:MI:SS')) * (60 * 24), 60)) DIFERENCIA_MINUTOS
,TRUNC(MOD((TO_DATE(CLOSE_DTM, 'DD.MM.YYYY HH24:MI:SS') - TO_DATE(ARRIVAL_DTM, 'DD.MM.YYYY HH24:MI:SS')) * (60 * 60 * 24), 60)) DIFERENCIA_SEGUNDOS
FROM
FT_FIRE_INCIDENTS
WHERE
ARRIVAL_DTM IS NOT NULL
AND CLOSE_DTM IS NOT NULL
order by DIFERENCIA_HORAS DESC, DIFERENCIA_MINUTOS DESC, DIFERENCIA_SEGUNDOS DESC
) A, DIM_TIEMPO T, DIM_BATTALION B
WHERE
A.ID_TIEMPO = T.ID_TIEMPO
AND A.ID_BATTALION = B.ID_BATTALION
AND rownum <= 10
```