דו"ח מיני פרוייקט בבסיסי נתונים

22/05/2020

אביתר רבינו
203148564

אליסף אלבז

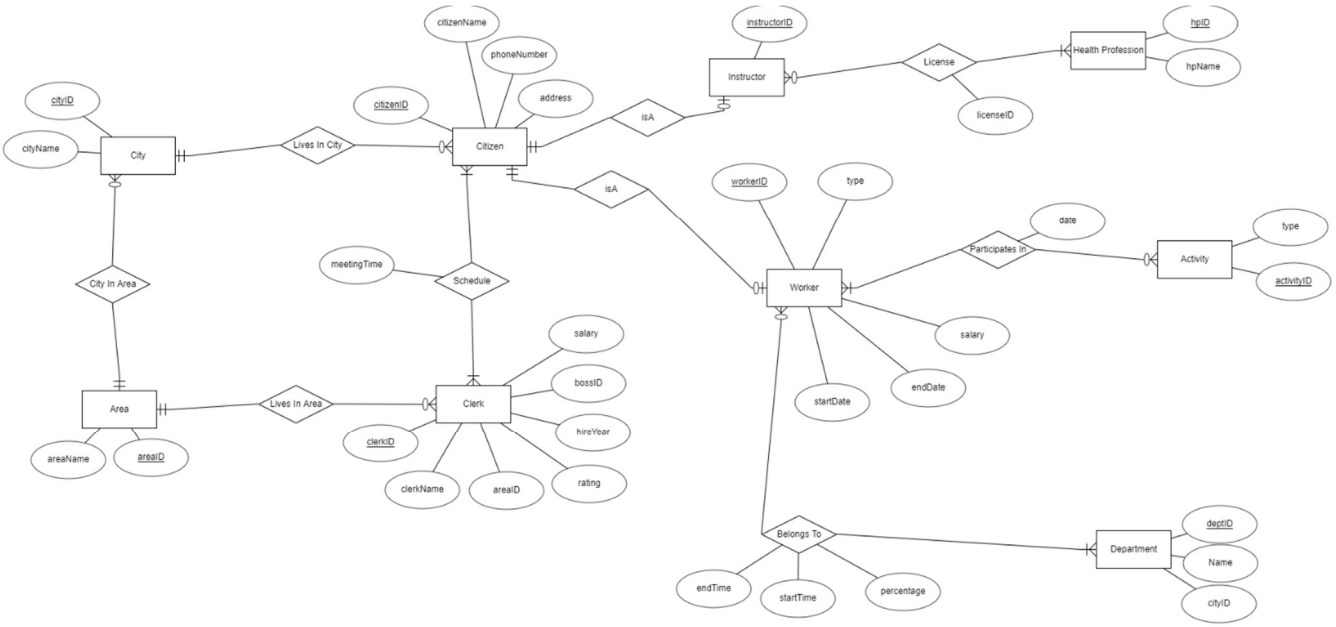
רקע

רקע

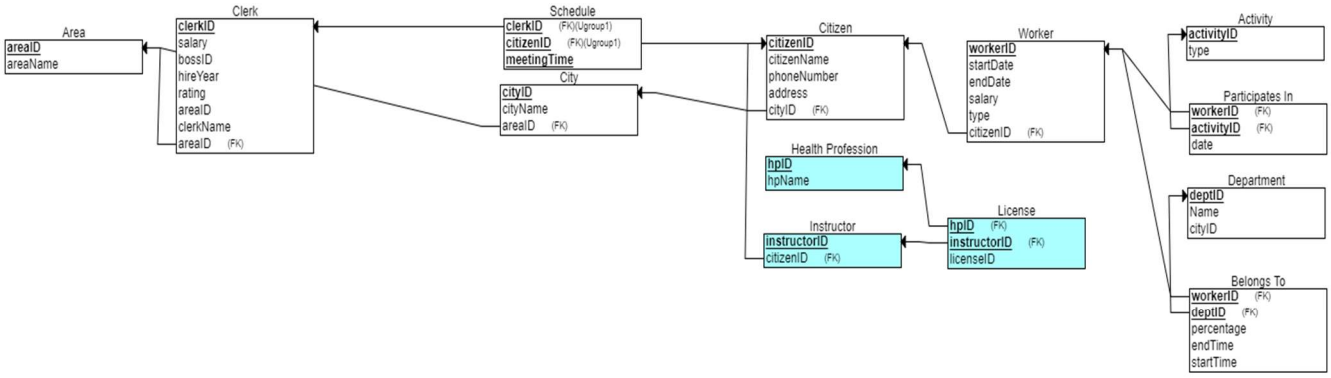
בפרוייקט זה, נדרשנו לתכנן את בסיס הנתונים של אגף משאבי אנוש במשרד הבריאות.

אגף משאבי אנוש מוביל מדיניות ואמות מידה לתכנון, פיתוח והעצמת המשאב האנושי במערכת הבריאות, תוך קידום והובלת תשתית לשיתופי פעולה עם כלל ארגוני הבריאות, בהתאם ליעדים ולצרכים של מערכת הבריאות.

תרשים ERD



תרשים DSD



תיאור הטבלאות במסד הנתונים

הטבלה area מתארת פרטי אזור.

מכילה areaId (מס' זיהוי לאיזור) ו- areaName (שם האיזור).

הטבלה city מתארת פרטי עיר.

מכילה cityId (מס' זיהוי לעיר) ו- cityName (שם העיר).

הטבלה citizen מתארת פרטי אזרח.

מכילה citizenId (ת.ז), citizenName (שם האזרח), phoneNumber (מס' פלאפון), address (כתובת מגורים).

הטבלה clerk מתארת פרטי פקיד.

מכילה clerkId (מס זהות ארגוני של הפקיד), ckerkName (שם הפקיד), areaId (מס' זהות אזור מגורי הפקיד), rating (דירוג הפקיד), hireYear (שנת העסקת הפקיד), bossId (מס, זהות ארגוני של בוס הפקיד), salary (משכורת הפקיד)

הטבלה instructor מתארת פרטי מדריך. יורשת מ-citizen.

מכיל instructorId (מס' זהות ארגוני של המדריך)

הטבלה worker מתארת פרטי עובד.

מכילה workerId (מס זהות ארגוני של העובד), type (סוג העובד), salary (משכורת העובד), startDate (תאריך תחילת העסקה), endDate (תאריך סיום העסקה).

הטבלה health profession מתארת פרטי מקצוע בריאות.
מכילה hpId (מס' זהות המקצוע), hpName (שם המקצוע)

הטבלה activity מתארת פרטי פעילות.
מכילה type (סוג הפעילות), ו-activityId (מס' זהות הפעילות)

הטבלה department מתארת פרטי מחלקה.
מכילה deptId (מס' זהות המחלקה), name (שם המחלקה), cityId (מס זהות העיר שבה המחלקה נמצאת).

קוד SQL ליצירת הטבלאות

```
CREATE TABLE Area
(
  areaID INT NOT NULL,
  areaName VARCHAR(32) NOT NULL,
  PRIMARY KEY (areaID)
);

CREATE TABLE Clerk
(
  salary FLOAT NOT NULL,
  bossID INT NOT NULL,
  hireYear INT NOT NULL,
  rating INT NOT NULL,
  areaID INT NOT NULL,
  clerkName VARCHAR(32) NOT NULL,
  clerkID INT NOT NULL,
  PRIMARY KEY (clerkID),
  FOREIGN KEY (areaID) REFERENCES Area(areaID)
);


CREATE TABLE City
(
  cityID INT NOT NULL,
  cityName VARCHAR(32) NOT NULL,
  areaID INT NOT NULL,
  PRIMARY KEY (cityID),
  FOREIGN KEY (areaID) REFERENCES Area(areaID)
);

CREATE TABLE Citizen
(
  citizenID INT NOT NULL,
  citizenName VARCHAR(32) NOT NULL,
  phoneNumber VARCHAR(32) NOT NULL,
  address VARCHAR(32) NOT NULL,
  cityID INT NOT NULL,
  PRIMARY KEY (citizenID),
```

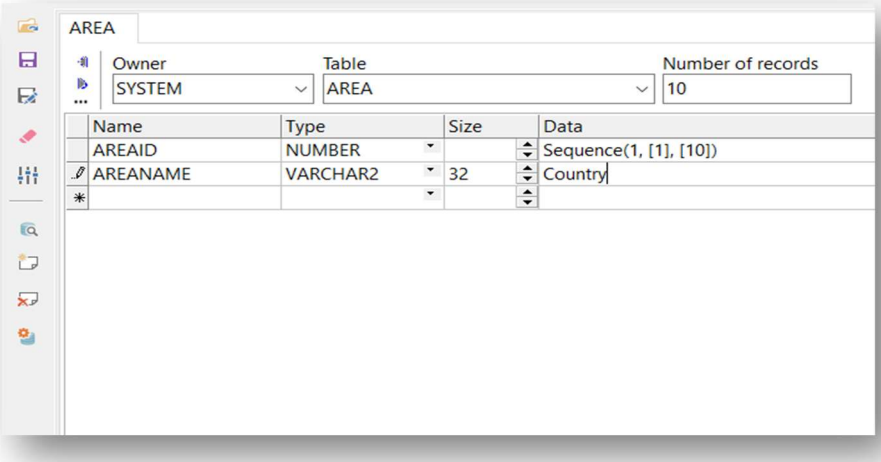
```sql
  FOREIGN KEY (cityID) REFERENCES City(cityID)
);


CREATE TABLE Schedule
(
  meetingTime DATE NOT NULL,
  clerkID INT NOT NULL,
  citizenID INT NOT NULL,
  PRIMARY KEY (meetingTime, clerkID, citizenID),
  FOREIGN KEY (clerkID) REFERENCES Clerk(clerkID),
  FOREIGN KEY (citizenID) REFERENCES Citizen(citizenID),
  UNIQUE (clerkID, citizenID)
);

CREATE TABLE Instructor
(
  instructorID INT NOT NULL,
  citizenID INT NOT NULL,
  PRIMARY KEY (instructorID),
  FOREIGN KEY (citizenID) REFERENCES Citizen(citizenID)
);

CREATE TABLE Health_Profession
(
  hpID INT NOT NULL,
  hpName VARCHAR(32) NOT NULL,
  PRIMARY KEY (hpID)
);

CREATE TABLE License
(
  licenseID INT NOT NULL,
  hpID INT NOT NULL,
  instructorID INT NOT NULL,
  PRIMARY KEY (hpID, instructorID),
  FOREIGN KEY (hpID) REFERENCES Health_Profession(hpID),
  FOREIGN KEY (instructorID) REFERENCES Instructor(instructorID)
);

CREATE TABLE Worker
(
  workerID INT NOT NULL,
  startDate DATE NOT NULL,
  endDate DATE,
  salary FLOAT NOT NULL,
  type INT NOT NULL,
  citizenID INT NOT NULL,
  PRIMARY KEY (workerID),
  FOREIGN KEY (citizenID) REFERENCES Citizen(citizenID)
);

CREATE TABLE Activity
(
  activityType VARCHAR(32) NOT NULL,
  activityID INT NOT NULL,
  PRIMARY KEY (activityID)
);

CREATE TABLE Participates_In
(
```

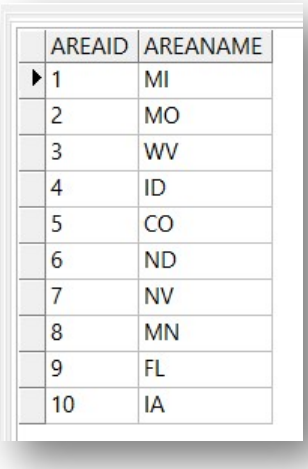
```
  participationDate DATE NOT NULL,
  workerID INT NOT NULL,
  activityID INT NOT NULL,
  PRIMARY KEY (workerID, activityID),
  FOREIGN KEY (workerID) REFERENCES Worker(workerID),
  FOREIGN KEY (activityID) REFERENCES Activity(activityID)
);

CREATE TABLE Department
(
  deptID INT NOT NULL,
  depName VARCHAR(32) NOT NULL,
  cityID INT NOT NULL,
  PRIMARY KEY (deptID)
);

CREATE TABLE Belongs_To
(
  jobPercentage FLOAT NOT NULL,
  endDate DATE NULL,
  startDate DATE NOT NULL,
  workerID INT NOT NULL,
  deptID INT NOT NULL,
  PRIMARY KEY (workerID, deptID),
  FOREIGN KEY (workerID) REFERENCES Worker(workerID),
  FOREIGN KEY (deptID) REFERENCES Department(deptID)
);
```

איכלוס הנתונים

איכלוס הנתונים נעשה בעזרת Data-Generator

טבלת Area





AREAID	AREANAME
1	MI
2	MO
3	WV
4	ID
5	CO
6	ND
7	NV
8	MN
9	FL
10	IA

טבלת Clerk

Owner	Table	Number of records
SYSTEM	CLERK	10..20

Name	Type	Size	Data
SALARY	FLOAT	22	Random(4000,12000)
BOSSID	NUMBER		Random(20000,20010)
HIREYEAR	DATE		Random(1.1.2008, 31.12.2019)
RATING	NUMBER		Random(4, 10)
AREAID	NUMBER		Sequence(1, [1], [10])
CLERKNAME	VARCHAR2	32	FirstName + ' ' + LastName
CLERKID	NUMBER		Sequence(1, [1], [10])

	SALARY	BOSSID	HIREYEAR	RATING	AREAID	CLERKNAME	CLERKID	ROWID
1	7293	20006	25/07/2008	6	1	Emily Farrow	1	AAATV3AABAAACdhAAA
2	7866	20009	24/02/2018	6	2	Arnold Singletary	2	AAATV3AABAAACdhAAB
3	11702	20001	23/12/2008	6	3	Rose Mraz	3	AAATV3AABAAACdhAAC
4	9295	20001	05/09/2018	10	4	Melanie Michael	4	AAATV3AABAAACdhAAD
5	10445	20001	26/05/2011	6	5	Bobbi Loveless	5	AAATV3AABAAACdhAAE
6	7531	20004	02/08/2012	4	6	Ernie Parm	6	AAATV3AABAAACdhAAF
7	8295	20008	30/10/2018	7	7	Spike Stiles	7	AAATV3AABAAACdhAAG
8	5737	20003	11/11/2012	4	8	Danni Santana	8	AAATV3AABAAACdhAAH
9	9848	20005	10/05/2011	5	9	Billy Schwimmer	9	AAATV3AABAAACdhAAI
10	5766	20010	23/10/2015	4	10	Daryle Downie	10	AAATV3AABAAACdhAAJ

טבלת City

CITY

Owner	Table	Number of records
SYSTEM	CITY	30

Name	Type	Size	Data
CITYID	NUMBER		Sequence(1, [1], [100])
CITYNAME	VARCHAR2	32	City
AREAID	NUMBER		Random(1, 10)

	CITYID	CITYNAME	AREAID	ROWID
1	23	Sursee	10	AAATVsAABAAACUJAAW
2	24	Thalwil	4	AAATVsAABAAACUJAAX
3	25	Sapulpa	5	AAATVsAABAAACUJAAY
4	26	Belgrad	1	AAATVsAABAAACUJAAZ
5	27	Linz	4	AAATVsAABAAACUJAAa
6	28	Boise	8	AAATVsAABAAACUJAAb
7	29	Berlin	8	AAATVsAABAAACUJAAc
8	30	Odense	3	AAATVsAABAAACUJAAd
9	1	Coppell	8	AAATVsAABAAACUJAAe
10	2	Neuquen	3	AAATVsAABAAACUJAAf
11	3	Monroe	6	AAATVsAABAAACUJAAg
12	4	Koblenz	2	AAATVsAABAAACUJAAh
13	5	Pasadena	1	AAATVsAABAAACUJAAi
14	6	Sainte-foy	2	AAATVsAABAAACUJAAj
15	7	Bellerose	4	AAATVsAABAAACUJAAk
16	8	Bend	9	AAATVsAABAAACUJAAl
17	9	Claymont	4	AAATVsAABAAACUJAAm
18	10	Kungki	5	AAATVsAABAAACUJAAn
19	11	Nagasaki	10	AAATVsAABAAACUJAAo
20	12	Northbrook	7	AAATVsAABAAACUJAAp
21	13	Lancaster	2	AAATVsAABAAACUJAAq
22	14	Zurich	7	AAATVsAABAAACUJAAr

טבלת Citizen

Data Generator | Data Generator | Edit data SYSTEM.SCHEDULE | Edit data SYSTEM.CIT

CITIZENID	CITIZENNAME	PHONENUMBER	ADDRESS	CITYID
1	Vienna Trevino	0083315492	36 Fred Street	4
2	Larenz Briscoe	00529471095	52 Shenzhen Road	7
3	Diamond Rains	0027420019	50 Red Road	24
4	Marisa Tyler	0029181261	51 Kuraby Blvd	27
5	Ruth Warwick	0088217809	413 O'Sullivan Street	19
6	Penelope Hayes	00534000927	12nd Street	24
7	Marianne Collins	0026135047	94 Neuchâtel Ave	25
8	Latin Rush	0029266283	26 Lachey Road	14
9	Mae May	0046785601	28 Tempe	6
10	Natasha Branagh	00527332538	457 Hauser Road	15
11	Debra McDonald	0089287318	61 LaBelle Street	8
12	Grace Pleasure	00544820505	52nd Street	3
13	Yaphet Thurman	00549658359	42 Downey Road	6
14	Edwin Logue	0023757407	46 Clint Road	11
15	Cliff Hewett	0096627849	53rd Street	18
16	Marty Lucien	00527636325	46 Glenn Street	19
17	Donald Dalley	0085812569	65 Kinnear Street	13
18	Gilbert Coverdale	00533376596	40 Kaysville Road	10
19	Heath Navarro	0032344699	98 Sally Road	1
20	Julianne Amos	0039489747	13 Choice Road	8
21	Vern Schiff	00532313647	10 Ashley Drive	9
22	Suzy Johansson	0046623006	564 Payton Street	26
23	Maury Patton	0'055'0502177947	17 Michaels Street	28
24	Etta Davis	00533740363	80 Rea Street	26
25	Angie Bratt	00521653005	55 Praga Road	29

Definition | Options | Result

SYSTEM [10:55:30] 1000 records generated in 0.703 seconds

CITIZEN

Owner: SYSTEM | Table: CITIZEN | Number of records: 1000

Name	Type	Size	Data
CITIZENID	NUMBER		Sequence(1, [1], [1000])
CITIZENNAME	VARCHAR2	32	FirstName + ' ' + LastName
PHONENUMBER	VARCHAR2	32	'0'+List('02','03','04','08','09','052','053','054','055'050)+Random(1000000,9999999)
ADDRESS	VARCHAR2	32	Address1
CITYID	NUMBER		Random(1, 30)

טבלת Schedule

SCHEDULE

Owner	Table	Number of records
SYSTEM	SCHEDULE	10..20

Name	Type	Size	Data
MEETINGTIME	DATE		Random(1-1-2008 09:00..31-12-2019 18:00)
CLERKID	NUMBER		Random(1, 12)
CITIZENID	NUMBER		Random(1, 1000)

	MEETINGTIME	CLERKID	CITIZENID	ROWID
1	17/09/2012 13:14:44	9	298	AAATVyAABAAACVRAAA
2	05/04/2010 22:16:53	6	779	AAATVyAABAAACVRAAB
3	27/10/2009 13:42:05	8	376	AAATVyAABAAACVRAAC
4	28/04/2016 18:57:18	1	438	AAATVyAABAAACVRAAD
5	16/10/2012 18:56:18	8	708	AAATVyAABAAACVRAAE
6	16/04/2015 06:05:45	3	613	AAATVyAABAAACVRAAF
7	24/06/2009 07:03:21	7	355	AAATVyAABAAACVRAAG
8	09/05/2014 21:47:39	12	857	AAATVyAABAAACVRAAH
9	06/06/2012 07:04:13	5	840	AAATVyAABAAACVRAAI
10	04/11/2010 19:16:10	9	453	AAATVyAABAAACVRAAJ
11	02/02/2014 21:33:33	6	902	AAATVyAABAAACVRAAK
12	25/11/2016 10:12:17	3	43	AAATVyAABAAACVRAAL
13	01/04/2017 16:42:48	12	966	AAATVyAABAAACVRAAM
14	18/04/2016 10:16:01	7	67	AAATVyAABAAACVRAAN

טבלת Instructor

Owner	Table	Number of records
SYSTEM	INSTRUCTOR	10

Name	Type	Size	Data
INSTRUCTORID	NUMBER		Sequence(1, [1], [10])
CITIZENID	NUMBER		Random(1,1000)

	INSTRUCTORID	CITIZENID	ROWID
1	1	735	AAATV5AABAAACdxAAA
2	2	505	AAATV5AABAAACdxAAB
3	3	301	AAATV5AABAAACdxAAC
4	4	344	AAATV5AABAAACdxAAD
5	5	813	AAATV5AABAAACdxAAE
6	6	389	AAATV5AABAAACdxAAF
7	7	441	AAATV5AABAAACdxAAG
8	8	883	AAATV5AABAAACdxAAH
9	9	929	AAATV5AABAAACdxAAI
10	10	186	AAATV5AABAAACdxAAJ

טבלת Health_Profession

Name	Type	Size	Data
HPID	NUMBER		Sequence(1, [1], [10])
HPNAME	VARCHAR2	32	List('Doctor','Nurse',Assistant','Laboratory-Man','Paramedic','Psychologist,)

	HPID	HPNAME	ROWID
1	1	Doctor	AAATVuAABAAACUZAAA
2	2	Nurse	AAATVuAABAAACUZAAB
3	3	Laboratory-M	AAATVuAABAAACUZAAC
4	4	Assistant'	AAATVuAABAAACUZAAD
5	5	'Psychologist	AAATVuAABAAACUZAAE
6	6	Paramedic	AAATVuAABAAACUZAAF

טבלת Worker

Owner: SYSTEM | Table: WORKER | Number of records: 250

Name	Type	Size	Data
WORKERID	NUMBER		Sequence(5000, [1], [7000])
STARTDATE	DATE		Random(1.1.2008, 31.05.2020)
ENDDATE	DATE		Random(1.6.2020, 31.12.2025)
SALARY	FLOAT	22	Random(4000,22000)
TYPE	NUMBER		Random(1,2)
CITIZENID	NUMBER		Random(1,1000)

Data Generator

WORKERID	STARTDATE	ENDDATE	SALARY	TYPE	CITIZENID
5000	16-04-2014	06-08-2020	13801	1	541
5001	11-02-2013	16-04-2023	13886	2	479
5002	09-01-2013	02-06-2021	14072	1	418
5003	05-06-2012	27-10-2020	7114	2	560
5004	01-10-2019	15-02-2022	12052	1	161
5005	09-11-2016	01-10-2025	5106	2	18
5006	28-03-2009	10-04-2025	7513	2	604
5007	17-07-2018	07-12-2020	18574	1	119
5008	02-09-2008	18-01-2021	9862	1	970
5009	03-04-2020	26-01-2023	12101	2	710
5010	30-04-2019	01-10-2020	14539	2	381
5011	08-06-2013	17-09-2024	19675	2	381
5012	15-08-2010	24-02-2025	9642	2	100
5013	17-11-2013	20-08-2025	5060	1	638
5014	11-02-2009	27-06-2025	20184	1	607
5015	18-03-2016	02-08-2024	5453	2	691
5016	10-09-2018	31-10-2020	16984	1	920
5017	02-12-2009	30-01-2024	9699	1	476
5018	30-06-2008	16-04-2022	19962	2	960
5019	09-07-2011	16-04-2023	21923	2	858
5020	11-04-2013	15-06-2023	9371	2	955
5021	09-08-2017	23-05-2024	5879	1	568
5022	15-11-2018	23-03-2024	19809	1	218
5023	21-04-2016	19-11-2025	9751	2	917
5024	10-02-2018	21-07-2021	12271	2	946

Definition | Options | Result

SYSTEM [12:23:00] 250 records generated in 0.312 seconds

טבלת Activity

Name	Type	Size	Data
ACTIVITYTYPE	VARCHAR2	32	List('Yoga','Swimming', 'Rafting', 'Running', 'Riding', 'Karaoke','Paiting')
ACTIVITYID	NUMBER		Sequence(1, [1], [7])

	ACTIVITYTYPE	ACTIVITYID	ROWID
1	Swimming	1	AAATVqAABAAACT5AAH
2	Riding	2	AAATVqAABAAACT5AAI
3	Karaoke	3	AAATVqAABAAACT5AAJ
4	Rafting	4	AAATVqAABAAACT5AAK
5	Yoga	5	AAATVqAABAAACT5AAL
6	Running	6	AAATVqAABAAACT5AAM
7	Paiting	7	AAATVqAABAAACT5AAN

טבלת Participates_In

Owner	Table	Number of records
SYSTEM	PARTICIPATES_IN	10..20

Name	Type	Size	Data
PARTICIPATIONDATE	DATE		Random(1.1.2008, 21.05.2020)
WORKERID	NUMBER		Random(5000,5250)
ACTIVITYID	NUMBER		Random(1,7)

	PARTICIPATIONDATE	WORKERID	ACTIVITYID	ROWID
1	28/03/2008	5021	1	AAATU/AABAAAaUZAAA
2	04/05/2010	5085	2	AAATU/AABAAAaUZAAB
3	14/08/2016	5201	3	AAATU/AABAAAaUZAAC
4	22/07/2011	5029	4	AAATU/AABAAAaUZAAD
5	23/10/2017	5134	5	AAATU/AABAAAaUZAAE
6	05/11/2019	5009	6	AAATU/AABAAAaUZAAF
7	19/10/2018	5197	7	AAATU/AABAAAaUZAAG

טבלת Department

DEPARTMENT

Owner	Table	Number of records
SYSTEM	DEPARTMENT	10..20

Name	Type	Size	Data
DEPTID	NUMBER		Sequence(1, [1], [100])
DEPNAME	VARCHAR2	32	List('Admissions', 'Anesthetics','Breast Screening','Cardiology','Chaplaincy','Critical Care','G
CITYID	NUMBER		Random(1, 20)

	DEPTID	DEPNAME	CITYID	ROWID
1	1	Admissions	18	AAATV9AABAAACVBAAA
2	2	Cardiology	8	AAATV9AABAAACVBAAB
3	3	Pharmacy	20	AAATV9AABAAACVBAAC
4	4	Nephrology	15	AAATV9AABAAACVBAAD
5	5	Admissions	15	AAATV9AABAAACVBAAE
6	6	Critical Care	19	AAATV9AABAAACVBAAF
7	7	Human Resources	15	AAATV9AABAAACVBAAG
8	8	Pharmacy	4	AAATV9AABAAACVBAAH
9	9	General Surgery	15	AAATV9AABAAACVBAAI
10	10	Pharmacy	6	AAATV9AABAAACVBAAJ
11	11	Oncology	2	AAATV9AABAAACVBAAK

טבלת Belongs_To

BELONGS_TO

Owner	Table	Number of records
SYSTEM	BELONGS_TO	10..20

Name	Type	Size	Data	Master
JOBPERCENTAGE	FLOAT	22	List('50','100','75','25')	
ENDDATE	DATE		Random(1.1.2020, 31.12.2024)	
STARTDATE	DATE		Random(1.1.2008, 31.12.2019)	
WORKERID	NUMBER		Sequence(50, [1], [60])	
DEPTID	NUMBER		Sequence(1, [1], [100])	

	JOBPERCENTAGE	ENDDATE	STARTDATE	WORKERID	DEPTID	ROWID
1	100	24/11/2024	05/07/2015	5005	1	AAATVDAABAAAaU5AAJ
2	75	20/09/2024	21/07/2019	5174	2	AAATVDAABAAAaU5AAK
3	75	21/10/2024	17/08/2011	5222	3	AAATVDAABAAAaU5AAL
4	75	02/01/2020	27/06/2018	5167	4	AAATVDAABAAAaU5AAM
5	75	16/02/2020	29/06/2012	5023	5	AAATVDAABAAAaU5AAN
6	100	22/03/2021	18/11/2016	5081	7	AAATVDAABAAAaU5AAO
7	50	17/02/2021	13/04/2008	5231	9	AAATVDAABAAAaU5AAP
8	75	15/09/2023	09/06/2015	5074	10	AAATVDAABAAAaU5AAQ
9	100	01/09/2024	14/08/2017	5013	11	AAATVDAABAAAaU5AAR