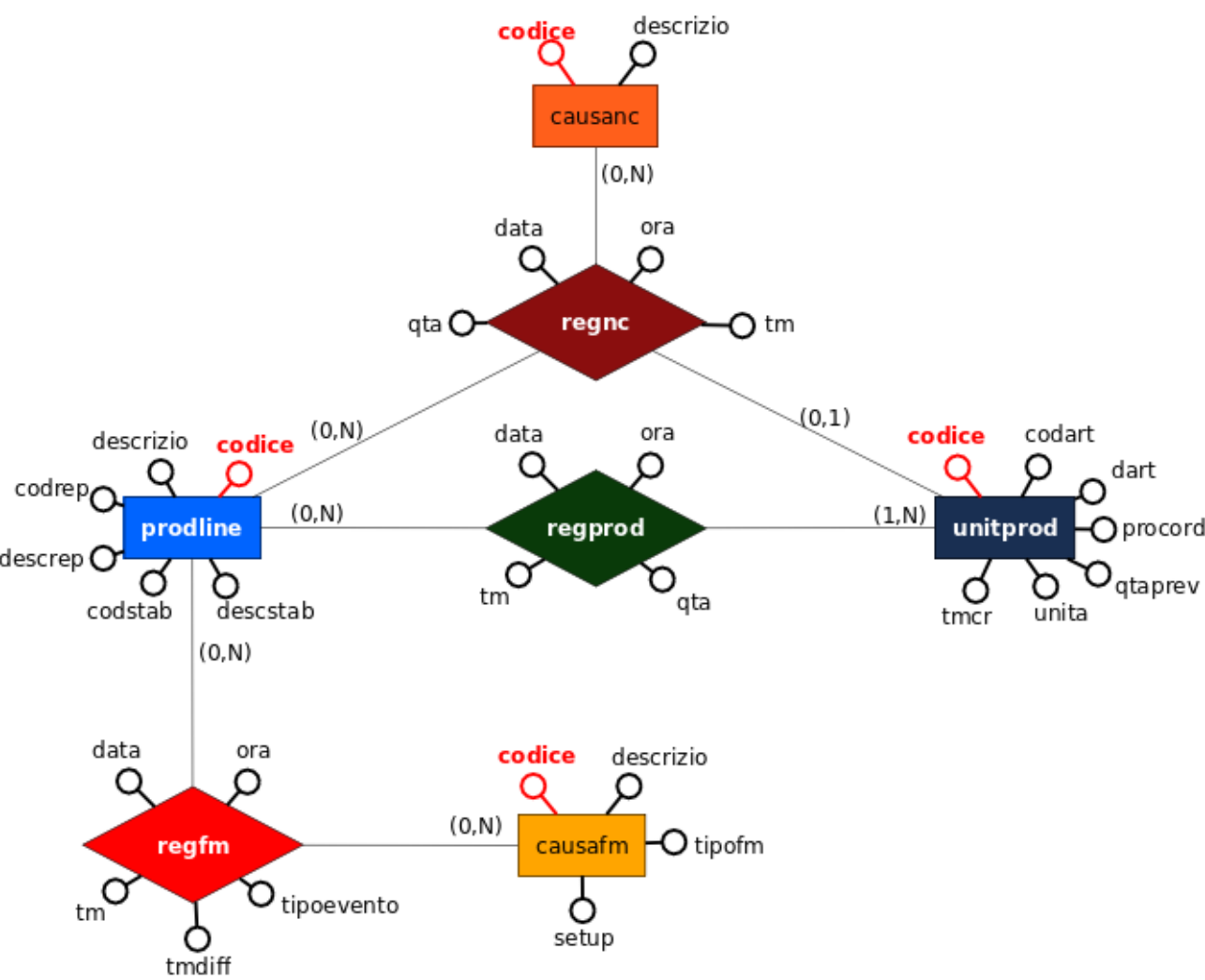


Shared database

Database access technical data

Server IP	regional server IP
Port	5432
Database type	PostgreSQL
Access mode	ODBC
ODBC Driver	32bit, 64bit
Database Name	andon_PLANT_CODE
Username	frankero
Password	f17!

E-R database schema



Data dictionary

Entities

Entity					
Name	Description	Attributes			
		Name	Description	Type	Identifier
prodlne	Production lines	key	Line unique key	varchar	SI
		descrizio	Line description	varchar	
		codrep	Department code	varchar	
		descrep	Department name	varchar	
		codstab	Plant code	varchar	
		descstab	Plant description	varchar	
unitprod	Unique production id, produces items	codice	Production unit unique code	varchar	YES
		codart	Article code	varchar	
		dart	Article description	varchar	
		procord	Production Order (ERP)	varchar	
		qtaprev	Number of items to be produced per production order	double	
		unita	Number of pieces per unit production (usually 1)	double	
		tmcrcr	Production unit creation Epoch Time (number of seconds from Jan 1, 1970)	long	
		datacr	Creation date in YYYYMMDD format (database date)	varchar	
		oracr	Creation time formatted as HH:MM:SS (HH=00..24)	varchar	
causanc	Non-conformity causes list	codice	Cause unique code	varchar	SI
		descrizio	Non-conformity cause description	varchar	
causafm	Line stop causes list	codice	Stop cause unique code	varchar	SI
		descrizio	Line stop cause description	varchar	
		tipofm	Type of stop: F = downtime, M = micro-stop, P = programmed pause	varchar	
		setup	Referred to tooling stops: 1 = stop is a tooling, 0 = stop is not a tooling	integer	

Relations

Relations					
Name	Description	Components	Attributes		
			Name	Description	Type
regprod	Each row represents a production event	prodlne, unitprod	data	Event date formatted as YYYYMMDD	varchar
			ora	Event time formatted as HH:MM:SS	varchar
			tm	Event Epoch time (number of seconds elapsed from Jan 1, 1970)	long
			qta	Number of produced pieces in production units	double
regnc	Each row represents a non-compliant event	prodlne, unitprod, causanc	data	Event date formatted as YYYYMMDD	varchar
			ora	Event type formatted as HH:MM:SS	varchar
			tm	Event Time Epoch (number of seconds from Jan 1, 1970)	long

Relations					
Name	Description	Components	Attributes		
			Name	Description	Type
			qta	Number of script items (production units)	double
regfm	Every row represents a begin or end of a line stop	prodline, causafm	data	Event date formatted as YYYYMMDD	varchar
			ora	Event type formatted as HH:MM:SS	varchar
			tm	Event Time Epoch (number of seconds from Jan 1, 1970)	long
			tmdiff	Time difference between 2 consecutive events, being them start or stop doesn't matter	long
			tipoevento	INFM=line stop begins, FIFM=line stop ends	long

Logical Schema

Table	Foreign keys
prodline (<u>codice</u> , descrizio, codrep, descprep, codstab, descstab)	
unitprod (<u>codice</u> , codart, dart, procord, qtaprev, unita, tmc, datacr, oracr)	
causanc (<u>codice</u> , descrizio)	
causafm (<u>codice</u> , descrizio, tipofm, setup)	
regprod (<u>codice</u> , data, ora, tm, qta, codlot, codubi)	- <i>codlot</i> foreign key on <i>unitprod.codice</i> - <i>codubi</i> foreign key on <i>prodline.codice</i>
regnc (<u>codice</u> , data, ora, tm, qta, codlot, codubi, caudef)	- <i>codlot</i> foreign key on <i>unitprod.codice</i> - <i>codubi</i> foreign key on <i>prodline.codice</i> - <i>caudef</i> foreign key on <i>causanc.codice</i>
regfm (<u>codice</u> , data, ora, tm, tmdiff, tipoevento, codubi, caufm)	- <i>codubi</i> foreign key on <i>prodline.codice</i> - <i>caufm</i> foreign key on <i>causafm.codice</i>

Example Queries

Produced pieces on Sep 18, 2017 with date, time, unique identifier, line description, department description, article description and production order, ordered by production time

```
SELECT DATA, ora, codlot, prodline.descrizio AS linea, prodline.descprep,
unitprod.dart, unitprod.procord FROM regprod
INNER JOIN prodline ON prodline.codice=regprod.codubi
INNER JOIN unitprod ON unitprod.codice=regprod.codlot
WHERE DATA='20170918'
ORDER BY tm
```

Produced pieces after Sep 17 (included) grouped by day, product and production order on line 151301

```
SELECT DATA, unitprod.dart, unitprod.procord, SUM(qta) AS pezzi FROM regprod
INNER JOIN unitprod ON unitprod.codice=regprod.codlot
```

```
WHERE regprod.codubi='151301' AND regprod.data>='20170917'  
GROUP BY DATA, dart, procord
```

List of line 151301 stop (begins and ends) from 06:00 to 14:00 of Sep 17, with date, time, run/stop time in minutes, type of stop, stop cause description, stop type, setup (1,0)

```
SELECT DATA, ora, tmdiff/60 AS dtm, tipoevento, causafm.descrizio AS dfermo,  
causafm.tipofm, causafm.setup FROM regfm  
INNER JOIN causafm ON causafm.codice=regfm.caufm  
WHERE codubi='151301' AND DATA='20170917' AND ora>='06:00' AND ora<='14:00'  
ORDER BY tm
```