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| Business Template  **SUBWAY** |
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# Business Description

## Business background

Subway is a business that has many business processes from hiring employees to purchasing details for trains. And all these processes are accompanied by a large amount of data that must be structured for the successful conduct of this business

## Problems. Current Situation

There are no clear analytics and structured objects for analysis, because there is no common database for this.

## the Benefits of implementing a database. Project Vision

1. One data source
2. Optimizing the creation of analytical objects
3. Automation of analytical processes

# Model description

## Definitions & Acronyms

## Logical Scheme

**1. Station**

station\_id (INT, PK)

name (varchar)

is\_transfer (Bool)

line\_id (INT, FK)

**2. Line**

line\_id (INT, PK)

name (varchar)

color (varchar)

**3. Train**

train\_id (INT, PK)

model (varchar)

capacity (INT)

line\_id (INT, FK)

datefrom (date)

dateto(date)

is\_working(Varchar(2))

**4. Schedule**

schedule\_id (INT, PK)

train\_id (INT, FK)

station\_id (INT, FK)

arrival\_time (TIME)

day\_of\_week (varchar)

**5. Employee**

employee\_id (INT, PK)

first\_name (varchar)

last\_name (varchar)

date\_of\_birth (date)

position\_id (INT, FK)

station\_id (INT, FK)

start\_date (date)

end\_date (date)

**6. Position**

position\_id (INT, PK)

position\_name (varchar)

base\_salary (decimal)

is\_available (Varchar(2))

**7. Incidents**

incident\_id (INT, PK)

station\_id (INT, FK)

incident\_time (TIME)

description (varchar)

responsible\_employee\_id (INT, FK)

**8. Station Property**

facility\_id (INT, PK)

station\_id (INT, FK)

facility\_type (varchar)

cost (decimal)

is\_available (Varchar(2))

**9. Transfer**

transfer\_id (INT, PK)

from\_station\_id (INT, FK)

to\_station\_id (INT, FK)

transfer\_time\_in\_minutes (decimal)

**10. Station Cleaning**

cleaning\_id (INT, PK)

station\_id (INT, FK)

responsible\_employee\_id (INT, FK)

day\_of\_cleaning (date)

cleaning\_check (INT)

## Objects

Table Description

1. Station

Contains information about subway stations

|  |  |  |  |
| --- | --- | --- | --- |
| Table Name | Field name | Field Description | Data Type |
| Station | station\_id | Unique identifier for the station (PK) | INT |
| name | Name of the station | varchar |
| is\_transfer | Boolean value which show whether the station is a transfer point | Bool |
| Line\_id | A unique identifier that shows which subway line the station is on (FK) | INT |

Comments on table relationships

This table has relation ships by station\_id(PK) with next tables: Schedule (station\_id), Incidents (station\_id), Station propety (station\_id) , Employee(station\_id), Station cleaning(station\_id), transfer(from\_station\_id,to\_station\_id)

With line\_id(FK) next table: line (line\_id)

Example with data

|  |  |  |  |
| --- | --- | --- | --- |
| station\_id | name | is\_transfer | line\_id |
| 1 | Vokzalna | No | 1 |

2. LINE

Contains information about subway lines

|  |  |  |  |
| --- | --- | --- | --- |
| Table Name | Field name | Field Description | Data Type |
| Line | Line\_id | Unique identifier for the line (PK) | INT |
| name | Name of the line | varchar |
| color | Color used to represent the line on the subway map | varchar |

Comments on table relationships

This table has relation ships by line\_id(PK) with next tables: train(line\_id),

Example with data

|  |  |  |
| --- | --- | --- |
| line\_id | name | color ` |
| 1 | Saltivska line | blue |

3. TRAIN

Contains information about trains

|  |  |  |  |
| --- | --- | --- | --- |
| Table Name | Field name | Field Description | Data Type |
| Line | train\_id | Unique identifier for the train (PK) | INT |
| model | Model of the train | varchar |
| capacity | Passenger capacity of the train | INT |
| line\_id | The line on which the train operates (FK) | INT |
| Datefrom | date of commencement of train operation | date |
| dateto | date of end of train operation | date |
| is\_working | shows whether the train is working in general | Varchar(2) |

Comments on table relationships

This table has relation ships by train\_id(PK) with next tables: Schedule(train\_id)

With line\_id(FK): line(line\_id)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| train\_id | model | capacity` | Line\_id | Datefrom | dateto | Is\_working |
| 1 | Honda | 45 | 1 | 20.12.2020 | 13.01.2023 | N (NO) |

4.SCHEDULE

Contains information about train schedules.

|  |  |  |  |
| --- | --- | --- | --- |
| Table Name | Field name | Field Description | Data Type |
| Schedule | schedule\_id | Unique identifier for the schedule entry (PK) | INT |
| train\_id | Foreign key referencing the train (FK) | INT |
| station\_id | Foreign key referencing the station (FK) | INT |
| arrival\_time | Time when the train arrives at the station | TIME |
| day\_of\_week | Day of the week for which this schedule applies | varchar |

Comments on table relationships

This table has relation ships by train\_id(FK) with next table: Train(train\_id)

This table has relation ships by station\_id(FK) with next table: Station (Station\_id)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| schedule\_id | train\_id | station\_id | arrival\_time | day\_of\_week |
| 1 | 2 | 1 | 20:35 03.10.2024 | Monday |

5. Employee

|  |  |  |  |
| --- | --- | --- | --- |
| Table Name | Field name | Field Description | Data Type |
| Employee | employee\_id | Unique identifier for the employee (PK) | INT |
| First\_name | First name of the employee | varchar |
| Last\_name | Last name of the employee | varchar |
| Date\_of\_birth | Date of birth of the employee | date |
| Position\_id | Foreign key referencing the employee's position (FK) | INT |
| Station\_id | Foreign key referencing the station where the employee works (FK) | INT |
| Start\_date | the first official day of work | Date |
| End\_date | the last official day of work | Date |

Comments on table relationships

This table has relationships by employee\_id(PK) with next table: Incidents (responsible\_employee\_id),

Station cleaning(responsible\_employee\_id).

This table has relationships by station\_id(FK) with next table: Station (Station\_id)

AND

This table has relationships by position\_id(FK) with next table Position (position\_id)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| employee\_id | first\_name | Last\_name | Date\_of\_birth | Position\_id | Station\_id | Start\_date | End\_date |
| 1 | Volodymyr | Kotelnytskyi | 20.11.2002 | 1 | 1 | 01.01.2022 | 23.08.2024 |

6. Position

Contains information about employee positions

|  |  |  |  |
| --- | --- | --- | --- |
| Table Name | Field name | Field Description | Data Type |
| Position | position\_id | Unique identifier for the position (PK) | INT |
| Position\_name | Name of the position | varchar |
| Base\_salary | Base salary for this position | decimal |
| Is\_available | Сhecks the availability of this position | Varchar(2) |

Comments on table relationships

This table has relationships by position\_id(PK) with next table: Employee (employee\_id)

|  |  |  |  |
| --- | --- | --- | --- |
| position\_id | position\_name | Base\_salary | Is\_available |
| 1 | Cleaner | 5000.00 | Y (Yes) |

7. Incidents

Contains information about incidents at stations

|  |  |  |  |
| --- | --- | --- | --- |
| Table Name | Field name | Field Description | Data Type |
| Incidents | incident\_id | Unique identifier for the incident (PK) | INT |
| Station\_id | Station where incident was (FK) | INT |
| Incident\_time | Time when the incident occurred | TIME |
| description | Description of the incident | varchar |
| Responsible\_employee\_id | Foreign key referencing the employee's position (FK) | INT |

Comments on table relationships

This table has relationships by station\_id(FK) with next table: Station (Station\_id)

AND

This table has relationships by responsible\_employee\_id (FK) with next table employee (employee\_id)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| incident\_id | Station\_id | Incident\_time | Description | | Responsible\_employee\_id |
| 1 | Volodymyr | 20:35 03.10.2024 | | The person felt sick | 1 |

8. Station property

Contains information about station property

|  |  |  |  |
| --- | --- | --- | --- |
| Table Name | Field name | Field Description | Data Type |
| Station property | facility\_id | Unique identifier for the employee (PK) | INT |
| Station\_id | First name of the employee | INT |
| Facility\_type | Last name of the employee | varchar |
| cost | Date of birth of the employee | decimal |
| Is\_available | checks the availability of this property | Varchar(2) |

Comments on table relationships

This table has relationships by station\_id(FK) with next table: Station (Station\_id)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| facility\_id | Station\_id | Facility\_type | cost | | Is\_available |
| 1 | 2 | mop | | 100.00 | Y |

9. Transfer

Contains information about transfer options between stations

|  |  |  |  |
| --- | --- | --- | --- |
| Table Name | Field name | Field Description | Data Type |
| Transfer | Transfer\_id | Unique identifier for the transfer (PK) | INT |
| From\_station\_id | Foreign key referencing the departure station (FK) | INT |
| to\_station\_id | Foreign key referencing the destination station (FK) | INT |
| Transfer\_time\_in\_minutes | Date of birth of the employee | decimal |

Comments on table relationships

This table has relationships by from\_station\_id(FK) with next table: Station (Station\_id)

AND

This table has relationships by to\_station\_id (FK) with next table: Station (Station\_id)

|  |  |  |  |
| --- | --- | --- | --- |
| Transfer\_id | From\_station\_id | to\_station\_id | Transfer\_time\_in\_minutes |
| 1 | 2 | 8 | 8.5 |

10. Station cleaning

Contains information about the general cleaning schedule and responsibilities for subway stations.

|  |  |  |  |
| --- | --- | --- | --- |
| Table Name | Field name | Field Description | Data Type |
| Station cleaning | Cleaning\_id | Unique identifier for the general cleaning (PK) | INT |
| Station\_id | Foreign key referencing the station being cleaned (FK) | INT |
| responsible\_employee\_id | Foreign key referencing the employee responsible for the cleaning. (FK) | INT |
| day\_of\_cleaning | The day when the cleaning is scheduled or was performed | date |
|  | cleaning\_check | A field to determine whether there was cleaning  1 - was  0 - there was none | INT |

Comments on table relationships

This table has relationships by station\_id(FK) with next table: Station (Station\_id)

AND

This table has relationships by responsible\_employee\_id (FK) with next table employee (employee\_id)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cleaning\_id | Station\_id | responsible\_employee\_id | day\_of\_cleaning | Cleaning\_check |
| 1 | 2 | 5 | 20.05.2024 | 1 |