Make appointments with Appointify – Data Warehouse Design

Business process

The Date warehouse is designed for the Process of people making appointments. This process is described in the document Specification of business processes in Making appointments in Appointify Network.

Relational Database schema

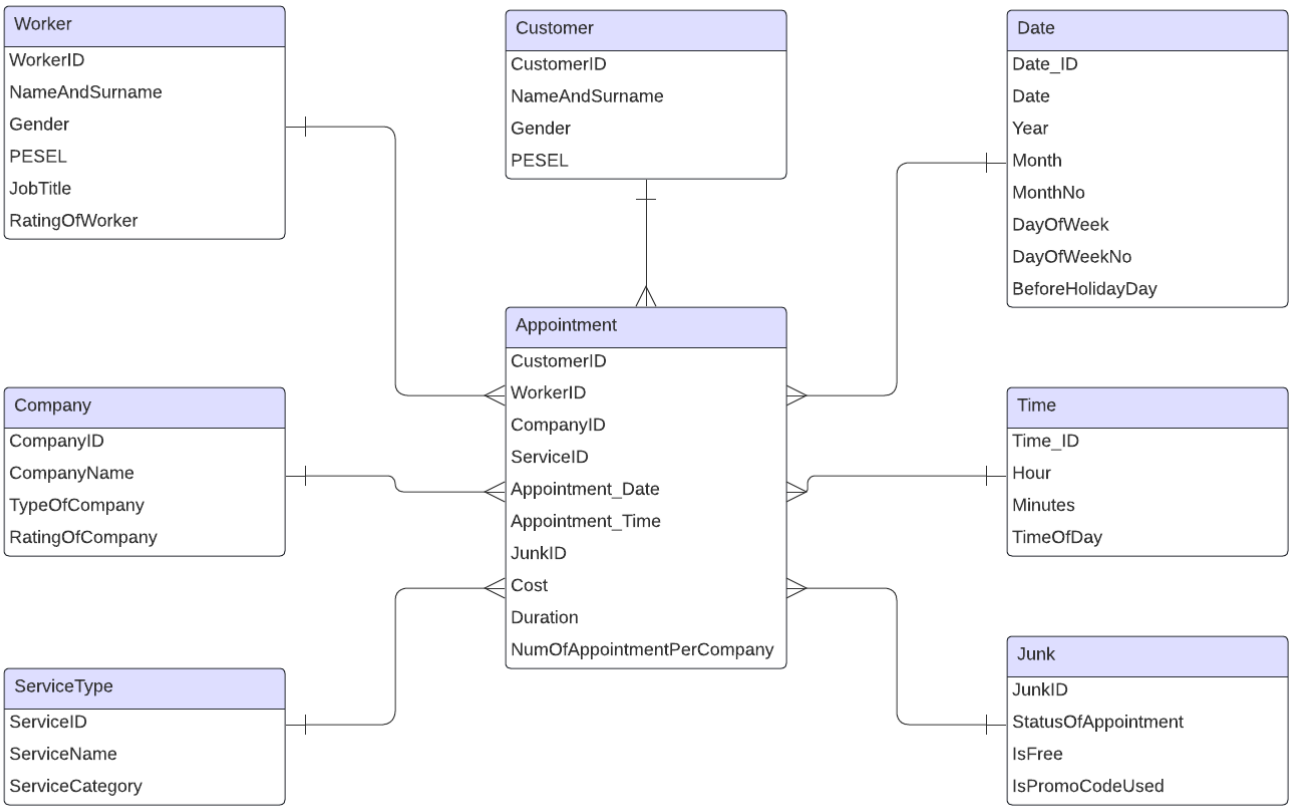

TABLE NAME	ATTRIBUTE	ATTRIBUTE TYPE	DESCRIPTION
APPOINTMENT (FACT TABLE)	One tuple describes one fact of Appointment.		
	CustomerID	Numeric	FK Data Customer
	WorkerID	Numeric	FK data Worker
	CompanyID	Numeric	FK Data Company
	ServiceID	Numeric	FK Data Service
	Appointment_Date	Numeric	FK Date Appointment Date
	Appointment_Time	Numeric	Time of the Appointment
	JunkID	Numeric	FK Data Junk
	Cost	Numeric	Cost of the Appointment
	Duration	Numeric	The duration of the appointment by the customer. In minutes

DATE (Dimension Table)	One Tuple Describes one Day		
	Date_ID	Numeric	PK(Surrogate key)
	Date	Date	Date
	Year	Numeric	Year
	Month	Varchar (10)	Month of the year (like January, March, etc.)
	MonthNo	Numeric	Month's numeric value
	DayOfWeek	Varchar(10)	Day of week. Allowed values: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday
	DayOfWeekNo	Numeric	Weekday's numeric value
	BeforeHolidayDay	Verchar(62)	Before holiday day. Allowed values: tomorrow is Grandmother's Day, tomorrow is Grandfather's Day,

Time(Dimension Table)	One tuple describes one hour (independently on date)		
	TimeID	Numeric	Pk
	Hour	Numeric	Hour. Allowed values from 0 – 23.
	TimeOfDay	Varchar(20)	Time of day. Allowed values: between 7 and 10, between 11 and 14, between 15 and 18, between 19 and 22).
	Minutes	Numeric	Minutes.

Customer(DIMENSION TABLE)	One tuple describes the details of the customers		
	CustomerID	Numeric	PK (surrogate key)
	NameAndSurname	Varchar(50)	Name and surname
	Gender	Varchar(10)	Sex. Allowed values: male, female
	PESEL	11 digit	Personal Identification Number.

Worker(Dimension Table)	One tuple describe about the worker		
	WorkerID	Numeric	PK Data

	NameAndSurname	Varchar(50)	Name and Surname
	Gender	Varchar(10)	Sex. Allowed values: male, female
	PESEL	11 digit	Personal Identification Number.
	JobTitle	Varchar(50)	Job title of the Worker
	RatingsOfWorker	Numeric	Review of Worker. Allowed Values: (Bad, Poor, Good, Great, Excellent) SCD Implementation

Company(Dimensional table)	One tuple Describe about the Company		
	CompanyID	Numeric	FK Data Company Id
	Company_Name	Varchar(50)	Name of the company
	TypeOfCompany	Varchar(20)	Types of company(like Barbershop, clinic, hair dresser)
	RatingsOfCompany	Numeric	Review of Company. Allowed Values: (Bad, Poor, Good, Great, Excellent) SCD Implementation

ServiceType	One tuple describe services that provided by company		
	ServiceID	Numeric	PK Data Service id
	Service_Name	Varchar(50)	Services name

	ServiceCategory	Varchar(50)	Types/Categories of service

JUNK (DIMENSION TABLE)	The tuples correspond to "all" possible combinations of values for Appointment		
	JunkID	Numeric	PK
	StatusOfAppointment	Varchar(50)	Status of Appointment, (Done, Canceled, No Show, etc)
	IsFree	Varchar (20)	Free/Not Free
	IsPromoCodeUsed	Varchar (3)	Yes or No

Dimensional model

Fact Definitions

Fact 1 Appointment Fact: The service was accessed at a specific date and time, and the worker confirmed that the Appointment was comprehensive. Furthermore, the length of the Appointment was determined based on the specific services utilized on that day.

Fact table: Appointment

Granularity:

- a specific Worker, with a JobTitle and Rating,
- a specific Customer,
- a specified date,
- specified time of Appointment,
- cost and Duration of Appointment.

Measures and aggregation functions:

Number of Appointment Facts - COUNT (1)

Number of Customers – DISTINCT COUNT_(1)

Number of Appointment per Company – COUNT(*) WHERE CompanyID

Average rating from the Customers - AVG(SUM(Rating))

Dimension definitions

Dimensions for Fact 1 Appointment fact:

DIMENSION/DIMENSION ATTRIBUTE	TABLE/COLUMN	TYPE
Appointment date	Date	Dimension
Appointment Year	Date.year	Dimension attribute
Appointment Date	Date.date	Dimension attribute
Appointment month	Date.month	Dimension attribute
Appointment date hierarchy	•Date.year ••Date.month •••Date.date	Hierarchical dimension
Day of the week	Date.day_of_week	Dimension attribute
Starting Appointment time	Time	Dimension
Appointment time hierarchy	•Time.hour ••Time.minutes	Hierarchical dimension
Worker	Worker	Dimension
Name_And_ Surname	Worker. Name_And_ Surname	Dimension Attribute
Gender	Worker.Gender	Dimension Attribute
JobTitle	Worker.JobTitle	Dimension Attribute
PESEL	Worker.PESEL	Dimension Attribute
Rating_Of_worker	Worker.Rating_Of_Worker	Dimension Attribute
ServiceType	Service	Dimension
ServiceName	Service.ServiceName	Dimension Attribute
ServiceCategory	Service.service_Type	Dimension Attribute
Customer	Customer	Dimension
Name_And_ Surname	Customer. Name_And_ Surname	Dimension Attribute
Gender	Customer.Gender	Dimension Attribute
PESEL	Customer.PESEL	Dimension Attribute
Company	Company	Dimension
Company_Name	Company.Company_Name	Dimension Attribute

Type_Of_Company	Company.Type_Of_Company	Dimension Attribute
Rating_Of_Company	Company.Rating_Of_Company	Dimension Attribute
Junk	Junk	Dimension
Status_Of_Appointment	Junk.Status_Of_Appointment	Dimension Attribute
Is_Free	Junk.Is_Free	Dimension Attribute
IsPromoCodeUsed	Junk.IsPromoCodeUs	Dimension Attribute

Checking the feasibility of queries based on the multidimensional model:

1. How does rating of workers influence on number of bookings?

Measure: Number of Appointments

Dimension: Worker (dimension attributes: Rating_Of_Worker)

2. How does rating of companies influence on number of bookings?

Measure: Number of Appointments

Dimension: Company (dimension attributes: Rating_Of_Company)

3. How effective are promo codes?

Measure: Number of Appointments

Dimension: Junk (dimension attributes: Is_PromoCode_Used)

4. Compare the number of appointments near-the-holidays days in current and previous month?

Measure: Number of Appointments

Dimension: Date (dimension attributes: Before_Holiday_Day, Date)

5. Are customers who had free appointments are likely to book another (normal) appointments?

Measure: Number of Appointments

Dimension: Junk (dimension attributes: Is_Free)

6. Find the peak time during the day?

Measure: Number of Appointments

Dimension: Time (dimension attribute: Time_Of_Day)

6. Which companies have the most amount of customers?

Measure: Number of Customers Per Company

Dimension: Company (dimension attributes: CompanyID, Type)

7. Which companies have the most amount of booking?

Measure: Number of Appointment per Company

Dimension: Company (dimension attribute: CompanyID)

8. Which services are most popular?

Measure: Number of Services

Dimension: Service (dimension attribute: ServiceID)

9. Compare the total bookings made by men and women?

Measure: Number of Appointments

Dimension: Customer (dimension attribute: Gender)

10. What Is the Impact of Weekday vs. Weekend on Booking Volumes?

Measure: Number of Appointment

Dimension: Date (dimension attributes: Day_of_the_Week)

Checking if there are Date in the Date sources needed to fill the Date warehouse

TABLE NAME	COLUMN	SOURCE
Appointment (Fact Table)	One tuple describes one fact of Making Appointments.	
	Customer_Id	Customer_id. Foreign key from dimension table. Based on Customer _id stored in Customer table in Appointify source.

	Worker_Id	Worker_Id.Foreign Key for dimension table.Based on Worker_Id stored in Worker Table in Appointify Source.
	CompanyID	CompanyID. FK from Appointify, Company, ID
	ServiceID	ServiceID. FK from Appointify, Service, ID
	Appointment_Date_Id	Appointment_Date_Id. Based on stored in Appointment table in Appointify Source.
	Time	Starting time . Foreign key from dimension table. Based on starting_time stored in Appointment table in Appointify source.
	Junk_Id	Junk_Id. Foreign key from dimension table. Based on Promo_Code and Status from Appointment table in Appointify source.
	Duration	Duration of Appointment in minutes (difference between starting time and ending time). Based on Duration stored in Appointment table in Appointment source
	Cost	Cost of Appointment. From Appointify, table Appointment, Column Cost. In PLN
ServiceType(DT)	One tuple Describe Service	
	Service_Id	Service_Id. Based on Service_Id table in service in Appointfy Source.
	Service Name	Appointify, Table Service, Column Service Name
	Service Category	Appointify, Table Service, Column Type
Customer(DT)	One Tuple Describe the Customer.	

	Customer Id	Customer id. Surrogate key - generated by the database.
	name_and_surname	Customer name and surname. Taken from name and surname columns in Customer table in Appointify source.
	Gender	Customer Gender. Allowed values: male, female. Based on Gender stored in Customer table in Appointify source.
Worker(Dimension Table)	One tuple describes one Worker	
	Worker_Id	Worker id. Surrogate key - generated by the database.
	Name_and_surname	Worker"s name and surname. Taken from name and surname columns in Worker table in Appointify source.
	Gender	User sex. Allowed values: male, female. Based on value stored in Worker table in Appointify Source.
	PESEL	User Personal Identification
	Job_Title	Job title describe the position of a worker in the company. Based on the value stored in Worker table in Appointify Source.
	Rating of Workers	Rating of worker. Taken from the stored value in Column I in Sheet 1. And stored in this way (Bad,

		Poor, Good, Great, Excellent) SCD Implementation
Company(DT)	One tuple Describe about the Company	
	Company_Id	Company id. Surrogate key - generated by the database.
	Company_Name	Company name . Taken from Company Name in Company table in Appointify source.
	Type_Of_Company	Like what is this company. (Barbershop, Beauty salon, Clinic, etc.). Based on the Company Table in Appointify Source.
	Rating_Of_Company	Rating of company. Based on the REVIEWS EXCEL TABLE sheet 2 in Appointify Source. And stored in this way (Bad, Poor, Good, Great, Excellent) SCD Implementation.
Date(DT)	One tuple describes one day. The data in this table is generated tuple by tuple, derived from any calendar, prior to the ETL process.	
Time (dimension table)	One tuple describes one time point (independently on date)	
	Time_Id	Time id. Surrogate key - generated by the database.
	Hours	Hours. Allowed values from 0 to 23. Based on starting_time or end_time from table

		Appointment in Appointify source.
	Minutes	Minutes. Allowed values from 0 to 59. Based on starting_time or end_time from table Appointment in Appointify source.
	Time_Of_Day	Time of day. Allowed values: between 8 and 10, between 11 and 12, between 13 and 14, between 15 and 16, after 19.
Junk(dimension table)	The tuple corresponds to "all" possible combinations of values for Promo_Code and Status from Appointment table are generated before ETL process.	
	Junk_Id	Junk_Id. Surrogate key - generated by the database.
	StatusOfAppointment	Status. From Appointify, table Appointment, column Status
	IsFree	Yes or No. Date is taken from Appintify, table Appointment, column Cost(if 0 PLN then it is FREE)
	IsPromoCodeUsed	Yes or No. Taken from Appointify, table PromoCode.