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Requirements specification for processing claims

1. General description of business process

a)   *A general description of the business process and a description of the performance metrics generated by this process, possible current analytical problems.*

The process of processing customers' claims starts when a car accident happens.
First the victim of such an accident files a claim via website or in one of our stationary offices. Then a claim processing is divided into four parts:
1.) **Initial validation** - this is the first step where a worker checks if the policy number given in the claim is an existing and valid policy number of our customer. Also the brief check of document correctness is made - if PESEL numbers, customer name and city names are correct (eg. without typos) and if all necessary information is provided. If the claim passes all of that it is being accepted and awaits evaluation.
2.) **Evaluation** - the process where the specialist tries to fairly evaluate the true damages based on given information. This is also the stage where all hidden incorrectness can be discovered (e.g. some mistakes in a police report or incomplete medical history), thus it may require the worker to contact the person submitting the claim.
3.) **Final decision** - offering the victim the compensation we are ready to pay out.
4.) **Survey** - person submitting the claim is asked to fill a survey regarding the claim processing. The survey is optional as we cannot force a person to fill it and it asks questions about customer satisfaction throughout the whole process.
* Jumps between phases 2. and 3. are common things. Contact, if needed, is maintained preferably via email (phone calls in certain situations).

Main goals:
- Increasing the number of new customers by 3% per year.
- Keeping customer's satisfaction above 80% percent level, checked monthly.

What is the acceptance rate of customer claims?
How many submissions were submitted last year?
How much money was paid out in compensation?
What was the average lifetime of a claim - from submitting till final decision?
Which worker handled the most and which the least claims?
What month did the most accidents occur? (early winter?)
What is the average payout per claim?
What is the percentage of clients with no claims made quarterly/monthly?
What is the average customer satisfaction level?

c)   *Data*

The data is taken from an internal database of customers' information and their claims. The information about customer satisfaction is derived from excel sheets (exported Google forms) and then linked with the claim and stored in a database.
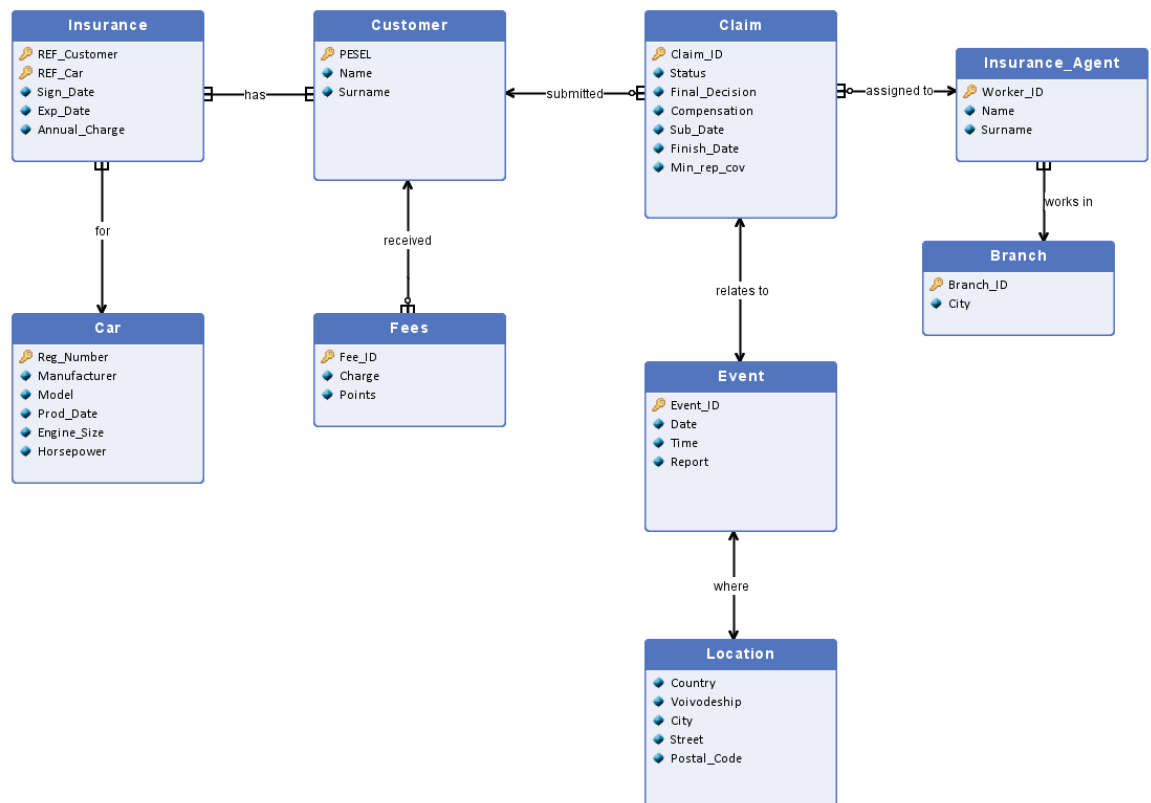
2. Data sources structures

Database

TABLE NAME	ATTRIBUTE	ATTRIBUTE TYPE	DESCRIPTION
CUSTOMER			
	PESEL	String - 11	PK
	NAME	String - 20	
	SURNAME	String - 20	
CAR			
	REG_NUMBER	String - 10	PK, registration number, licence plate number
	MANUFACTURER	String - 15	
	MODEL	String - 25	
	PROD_YEAR	Date (Year)	Year of the car's production
	ENGINE_SIZE	Int	Capacity of the engine in cm^3
	HORSEPOWER	Int	Power of the engine in horsepower unit
INSURANCE			
	INSURANCE_ID	String - 11	PK
	SIGN_DATE	Date	Signing date
	EXP_DATE	Date	Expiration date
	ANNUAL_CHARGE	Decimal (two digits precision)	Yearly charge of the insurance
FEES			
	FEE_ID	String - 9	PK
	CHARGE	Numerical	Payment for the fee
	POINTS	Numerical	Penalty points
CLAIM			
	CLAIM_ID	String - 9	PK
	FINAL_DECISION	String - 15	Decision about the claim
	COMPENSATION	Decimal (two digits precision)	The final coverage
	SUB_DATE	Date	Submission date

	FINISH_DATE	Date	Day when the claim finished processing
	MIN_REP_COV	Decimal (two digits precision)	Minimum repair coverage needed
INSURANCE AGENT			
	WORKER_ID	String - 5	PK
	NAME	String - 20	
	SURNAME	String - 20	
BRANCH			
	BRANCH_ID	String - 5	PK
	CITY	String - 20	
EVENT			
	EVENT_ID	String - 9	PK
	DATE	Date	
	TIME	Time	With a second precision
	REPORT	Text	
LOCATION			
	COUNTRY	String(25)	
	VOIVODSHIP	String(25)	
	CITY	String(25)	
	STREET	String(25)	
	POSTAL_CODE	String(25)	

Survey EXCEL

A - Victim Name
B - P erpetrator's policy number

C - City of accident
D - Date of submitting the survey
E - Contact Information (phone/email)
F - How satisfied are you with received compensation? (scale of 1-10)
G - How satisfied are you with our customer service? (scale of 1-10)
H - How easy was it to file a claim? (scale of 1-10)
I - How satisfied are you with the handling of your claim? (scale of 1-10)
J - How likely are you to use our services or recommend them to a friend or family
       member? (scale of 1-10)
K - Do you have any suggestions or comments on how we can improve our services?
L - Overall satisfaction rating (average score of all questions)

3. Scenarios of analytical problems

What can be done to decrease the time needed to process claims?

(because of resource optimization - cost reduction)

- Find and compare the average claim lifetime among all branches - from submitting till final decision.
- In which month did the most accidents occur?
- What is the processing time in relation to the amount of compensation?
- e) Compare the number of accidents in a person's history to his evaluated compensation. (We can assume that if a person had a lot of accidents he can be a fraud or incompetent driver)
- f) What is the time needed to process the claim in relation to the price of the damaged car? (As for now, we don't save information about car price (it is lost after the process) - only about the compensation (damages)).
- Find the worker who handled the most and who the least claims in each month.
- How many claims were submitted last year in comparison to the previous year (increase/decrease)?

What can be done to increase overall satisfaction from the process?

(to encourage potential customer to use services of the Asinus)

- Find workers whose claim processing was rated above average (in terms of customer satisfaction).
- What was the average processing time for the highest rated claims?
- What was the average compensation for claims rated with high satisfaction level?
- e) On average, what is the satisfaction level in relation to the market value of the damaged car? (as people who submit the survey are our potential clients we want to get to know what type of people we need to focus on)
- f) What is the customer's overall satisfaction level in relation to the number of phone talks with the insurance agent?
- Compare customer satisfaction levels among different cities.
- Is there a relation between customers' perception of ease of filling the claim and his/hers satisfaction?

4. Data needed for analytical problems

What can be done to decrease the time needed to process claims?

1. Find and compare the average claim lifetime among all branches - from submitting till final decision.
   - **date of claim submission -** Insurance database, Claim table, Sub_date column
   - **date of finish of the claim -** Insurance database, Claim table, Finish_date column
   - **branch name -** Insurance database, Branch table, Branch_ID and City columns
2. In which month did the most accidents occur?
   - **Claims -** Insurance Database, Claim table, Claim_ID column
   - **Final decision** (validation of the claim) - Insurance database, Claim table, Final_decision column
   - **Event** - Insurance Database, Event table, Date column
3. What is the processing time in relation to the amount of compensation?
   - **date of claim submission -** Insurance database, Claim table, Sub_date column
   - **date of finish of the claim -** Insurance database, Claim table, Finish_date column
   - **Compensation -** Insurance database, Claim table, Minimum_repair_coverage column

4. Compare the number of accidents in a person's history to his evaluated compensation.
   - **evaluated compensation -** Insurance database, Claim table, Minumium_repair_coverage column
   - **number of person's accidents** - no such information in both available data sources; one could find it in UFG database
5. What is the time needed to process the claim in relation to the market value of the damaged car?
   - **date of claim submission -** Insurance database, Claim table, Sub_date column
   - **date of finish of the claim -** Insurance database, Claim table, Finish_date column
   - **market value -** no such information, one have to find that in various external sources, e.g. online car markets, articles, databases/excel sheets found on internet
6. Find the worker who handled the most and who the least claims in each month.
   - **worker name -** Insurance Database, Insurance_Agent Table, Worker_ID, Name, Surname columns
   - **finish date (month)** - Insurance Database, Claim table, Finish_Date column
7. How many claims were submitted last year in comparison to the previous year (increase/decrease)?
   - **date of claim submission** - Insurance Database, Claim table, Sub_Date column

What can be done to increase overall satisfaction from the process?
1. Find workers whose claim processing was rated above average (in terms of customer satisfaction).
   - **Claim -** Insurance database, Claim table, Claim_ID column
   - **Worker -** Insurance database, Insurance_Agent table, Worker_ID, Name and Surname columns
2. What was the average processing time for the highest rated claims?
   - **date of claim submission -** Insurance database, Claim table, Sub_date column
   - **date of finish of the claim -** Insurance database, Claim table, Finish_date column
   - **Claim processing rating -** Survey EXCEL, L column
3. What was the average compensation for claims rated with high satisfaction level?
   - **compensation -** Insurance database, Claim table, Minumium_repair_coverage column
   - **Claim processing rating -** Survey EXCEL, L column

4. On average, what is the satisfaction level in relation to the market value of the damaged car?
   - **satisfaction level -** Survey EXCEL, L column
   - **market value of the damaged car -** no such information in both available data sources; one have to find that in various external sources, e.g. online car markets, articles, databases/excel sheets found on internet external sources
5. What is the customer's overall satisfaction level in relation to the number of phone talks with the insurance agent?
   - **satisfaction level -** Survey EXCEL, L column
   - **number of phone talks** - no such information, there should be a change in business process that the save such information and update it after each contact
6. Compare customer satisfaction levels among different cities.
   - **satisfaction level -** Survey EXCEL, L column
   - **city -** Insurance Database, Event table, city column
7. Is there a relation between customers' perception of ease of filling the claim and his/hers satisfaction?
   - **ease of filling the claim -** Survey EXCEL, H column
   - **customer satisfaction -** Survey EXCEL, G column