

Gathering of Requirements

The gathering of requirements is done by e-mail (dated 06/04/2024 17:44, see “360T - Your Job Application _ Invite to the e-Assessment.eml”).



360T - Your Job
Application _ Invite to

The email contains the instructions for implementing the attached task and give an impression about the coding style and the level of expertise. The attached files are:

1. “*Data Engineer Assignment.pdf*” with the explanation of the assignment that should be done and the requirements of another optional assignment.



Data Engineer
Assignment.pdf

2. “*rates_sample.csv*” an example of CSV containing a sample of events that needs to be analysed



rates_sample.csv

Analysis of Requirements

In the analysis of requirements phase, we determine the needs and expectation of a new Datawarehouse (DWH) product called “*ForeignExchangeRateDWH*”. The purpose of the analysis is to define expectations, resolve conflicts, document all the key requirements; it involves frequent communication with the stakeholders.

Stakeholder Identification

The project is composed by the following stakeholders:

- **360T**: 360T is a company founded in 2000 and it provides a range of FX trading solutions. Today 360T is uniquely positioned to help connect the global FX industry via proprietary suite of web-based technology solutions.
As the Deutsche Börse Group’s global FX unit, 360T offer a full range of streamlined services across the entire trading workflow of FX and Short-Term Money Market products, enabling firms to transact in a more transparent and efficient manner, whilst also reducing operational and regulatory risk. It is the company that provides the requirements.
- **Andrei Szabo**: He’s a Development Team Lead at 360T. The stakeholder is the main interface between the provider of the service and 360T.
- **Rocco Caliendo**: Rocco is a Data Engineer that works for build the ForeignExchangeRateDWH datawarehouse

Requirements

REQUIREMENT ID	REQUIREMENT NAME	REQUIRED	DESCRIPTION
REQ_001	DisplayRate	True	Display for each currency pair the FX exchange rate
REQ_002	DisplayChangePercentage	True	Display for each currency pair the percentage of the change compared to yesterday’s rate at 5PM New York Time
REQ_003	HighFrequency	True	Rates are received in high frequency, milliseconds
REQ_004	OutputFormat	True	The output must have the following format: <code>ccy_couple,rate,change</code> <code>"EUR/USD",1.08081,"-0.208%"</code>
REQ_005	JobSchedule	True	Schedule a job which runs every 1 hour and have the possibility to change the schedule to run every 1 minute instead
REQ_006	ActiveRates	True	The job should consider only “active” rates. What “active” means will be specified in the business logic during the design phase (for currency pairs that

			don't have an “ <i>active</i> ” rate, no output should be produced)
REQ_007	GenericSolution	True	In the example file there are 5 currency pairs but the job should work also if we assume 300 currency couples (or even more)
REQ_008	RealTimeStreaming	False	It's an optional requirement. Instead of a batch, we would like to change the process into a streaming one and display data in real time

Dictionary

TERM_ID	TERM	DESCRIPTION
TERM_001	ForeignExchangeRateDWH	This is the chosen name of the Datawarehouse and the project name
TERM_002	Stakeholder	Person, group or organization with a vested interest or stake, in the activities of the current project
TERM_003	360T	Company founded in 2000 that provides a range of FX trading solutions. It is one of the stakeholders
TERM_004	FX	Stand for Foreign Exchange
TERM_005	Currency Pair	It defines a pair of currencies using 3 letters for each currency (ISO Standard). For example, the pair USDEUR is composed by USD and EUR
TERM_006	Streaming	Streaming means that data is continuously generated. Such data should be processed by using stream processing techniques. It is usually used in the context of big data in which it is generated by many different sources at high speed
TERM_007	RealTime	Relating to a system in which input data is processed within milliseconds so that it is available virtually immediately as feedback to the process from which it is coming
TERM_008	DWH	It is the abbreviation of “Datawarehouse”
TERM_009	Base Currency	In a currency pair, for example EURUSD, the first three letters represent the so called “ <i>Base Currency</i> ”. In this case the Base Currency is EUR.
TERM_010	Quote Currency	In a currency pair, for example EURUSD, the latest three letters represent the so called “ <i>Quote Currency</i> ”. In this case the Quote Currency is USD.