META+3

SPRINT 3 - Architectural adaptations and advice

Class: 3
Group: Meta+3
Project: Meta

CONTENT

AI

ALERT

Recap

1 Project understanding

2 Architecture adaptations

3 Simulations and tests
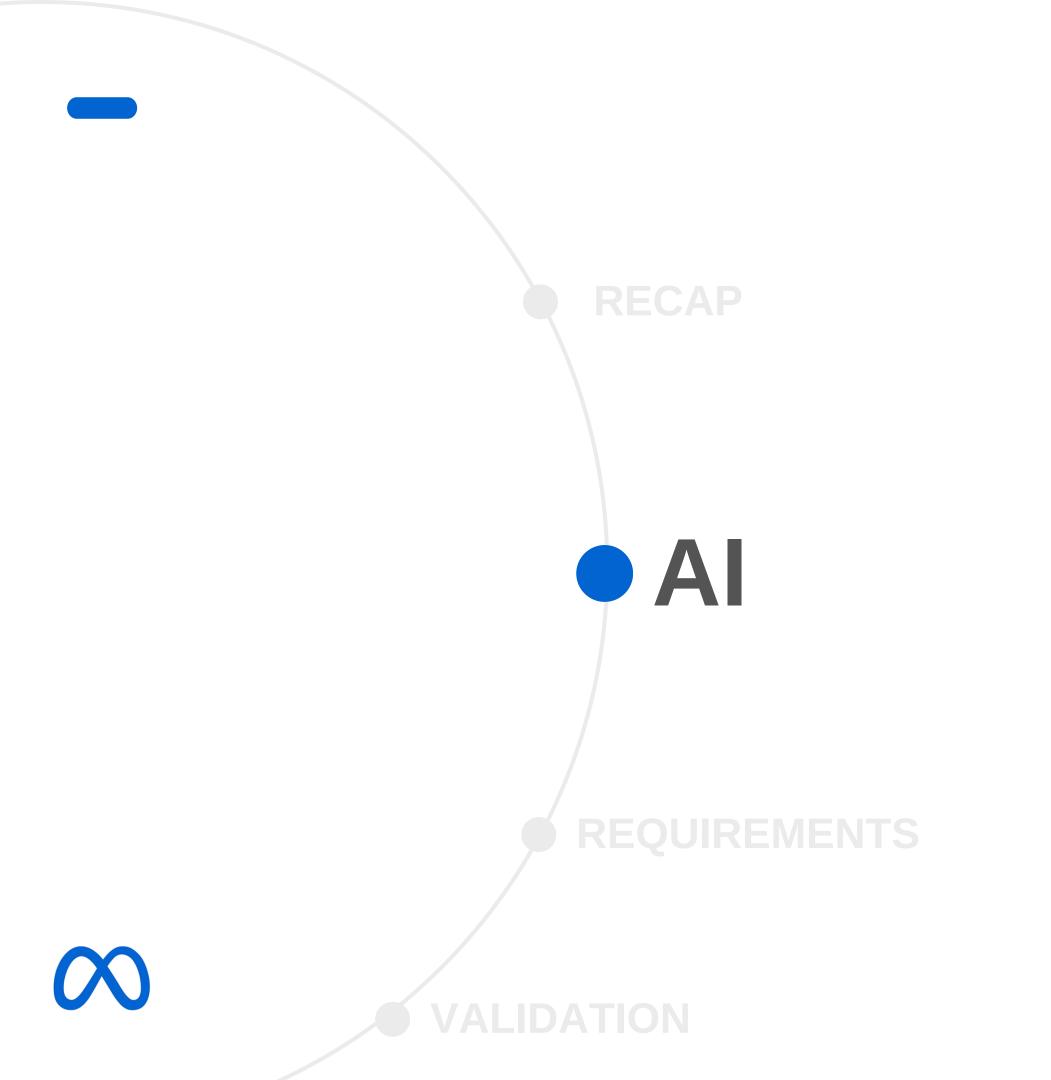
4 TBD

5 TBD

RECAP

AI

REQUIREMENTS

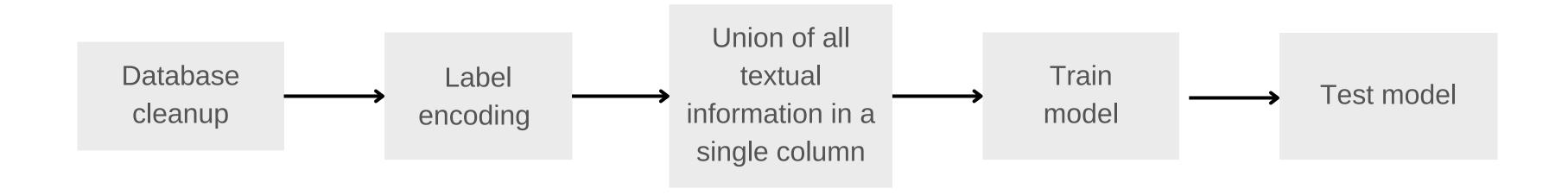VALIDATION

Simulation - AI

NFR-05. The response time of the classification system should be within 10 seconds per classification.
NFR-06. The natural language processing time of the NFe description must be up to 5 seconds.

AI - architecture

The "bert-base-uncased" AI model is an implementation of BERT (Bidirectional Encoder Representations from Transformers). BERT is a pre-trained language model using the masked language modeling (MLM) task on a large corpus of text.

Database cleanup → Label encoding → Union of all textual information in a single column → Train model → Test model
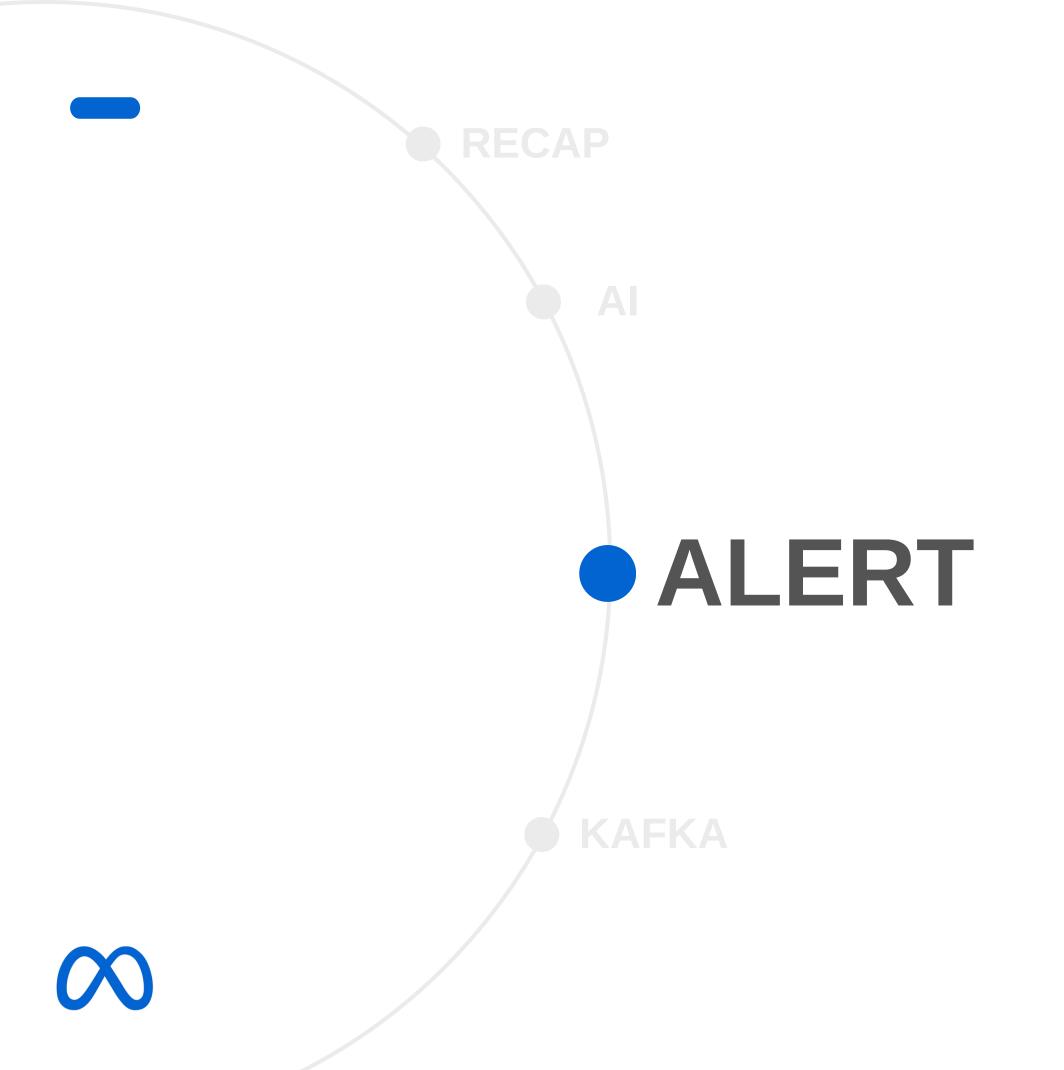
Tests

```python
 3
 4    print("text: ", example["text"])
 5    print("label: ", example["label"])
 6    print("input_ids: ", example["input_ids"])
 7    print("input_ids length: ", len(example["input_ids"]))
 8    print("attention_mask: ", example["attention_mask"])
 9    print("attention_mask length: ", len(example["attention_mask"]))
10    print("tokens: ", tokens)
11    print("tokenized text: ", tokenizer.convert_tokens_to_string(tokens))
```
Python

```
text:  Normalized Supplier Name, SANTA CATARINA TRIBUNAL DE JUSTICA, Country Name, Brazil, Strategic Region, LATAM, Requestor Name, unknown, Preparer N
label:  4
input_ids:  [101, 3671, 3550, 17024, 2171, 1010, 4203, 4937, 27943, 12152, 2139, 2074, 5555, 1010, 2406, 2171, 1010, 4380, 1010, 6143, 2555, 1010, 2474
input_ids length:  178
attention_mask:  [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
attention_mask length:  178
tokens:  ['[CLS]', 'normal', '##ized', 'supplier', 'name', ',', 'santa', 'cat', '##arina', 'tribunal', 'de', 'just', '##ica', ',', 'country', 'name', '
tokenized text:  [CLS] normalized supplier name, santa catarina tribunal de justica, country name, brazil, strategic region, latam, requestor name, unk
```

Results

```
{'test_loss': 0.4958604574203491,
 'test_runtime': 34.1055,
 'test_samples_per_second': 49.552,
 'test_steps_per_second': 0.792}
```

RECAP

AI

ALERT

KAFKA

M+3

Simulation - Alert

RNF-09: In situations of failure during the classification process, it is imperative that the technical support team is automatically notified at the time of the failure.
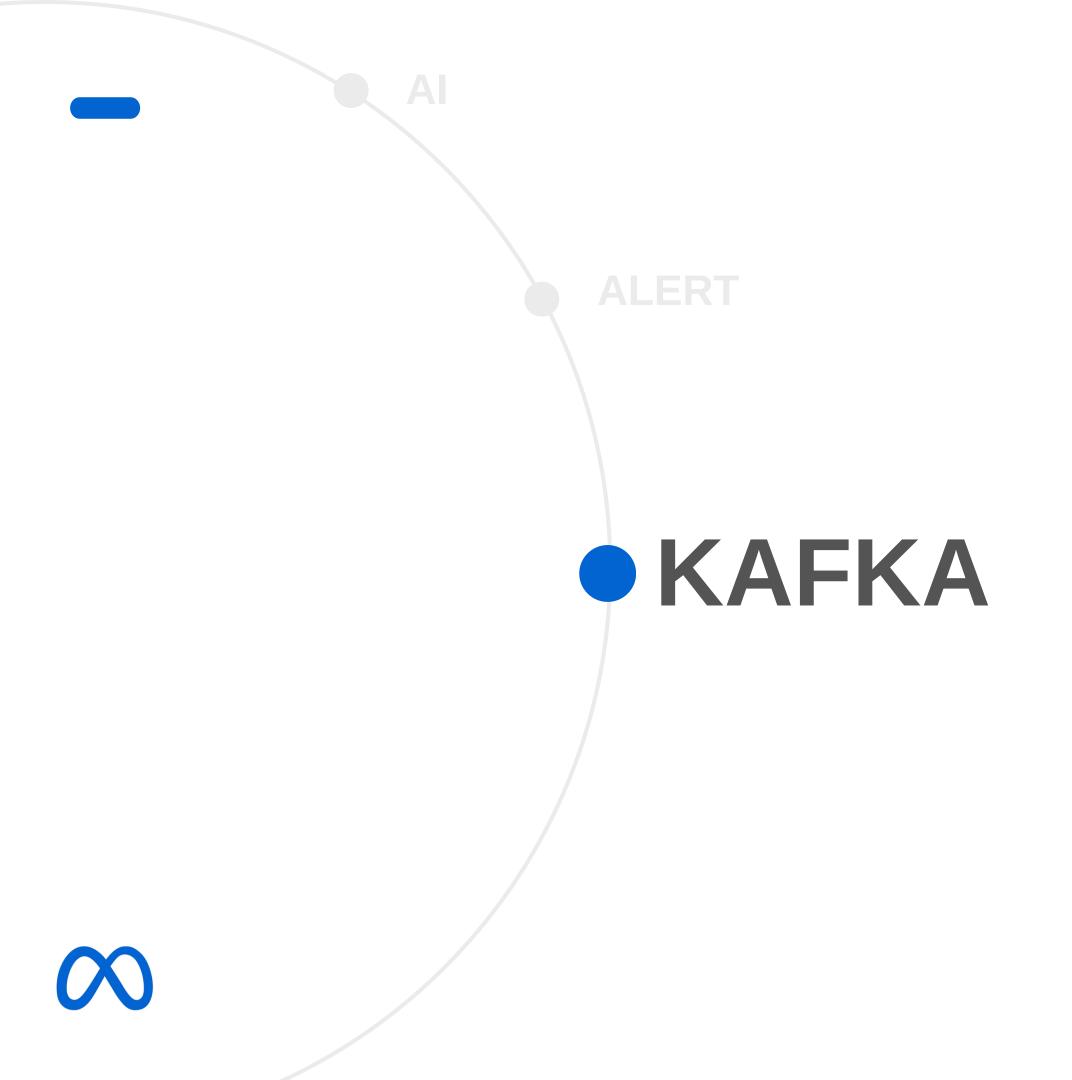
Alert– architecture

AI

ALERT

● **KAFKA**

KAFKA

simulation of sending and receiving invoices using the Kafka architecture, the idea is that with Kafka it is possible to make a number greater than 30 requests at a time

```
> fila@1.0.0 start:producer
> node ./producer/index.js

{"level":"WARN","timestamp":"2023-11-27T17:06:09.957Z","logger":"kafkajs","me
ssage":"KafkaJS v2.0.0 switched default partitioner. To retain the same parti
tioning behavior as in previous versions, create the producer with the option
 \"createPartitioner: Partitioners.LegacyPartitioner\". See the migration gui
de at https://kafka.js.org/docs/migration-guide-v2.0.0#producer-new-default-p
artitioner for details. Silence this warning by setting the environment varia
ble \"KAFKAJS_NO_PARTITIONER_WARNING=1\""}
Message wrote successfully to test topic
Message wrote successfully to test topic
Message wrote successfully to test topic
Message wrote successfully to test topic
Message wrote successfully to test topic
Message wrote successfully to test topic
Message wrote successfully to test topic
Message wrote successfully to test topic
Message wrote successfully to test topic
Message wrote successfully to test topic
Message wrote successfully to test topic
Message wrote successfully to test topic
Message wrote successfully to test topic
```

```
> fila@1.0.0 start:consumer
> node ./consumer/index.js

consumer...
Consumer pronto...
{"level":"INFO","timestamp":"2023-11-27T17:06:20.114Z","logger":"kafkajs","message":"[Consumer] Start
ing","groupId":"kafka"}
{"level":"INFO","timestamp":"2023-11-27T17:06:23.178Z","logger":"kafkajs","message":"[ConsumerGroup]
Consumer has joined the group","groupId":"kafka","memberId":"my-consumer-453d52f0-1661-4424-b442-1c56
57e28a32","leaderId":"my-consumer-453d52f0-1661-4424-b442-1c5657e28a32","isLeader":true,"memberAssign
ment":{"test":[0]},"groupProtocol":"RoundRobinAssigner","duration":3061}
Received message: {"category":"Logistica","name":"META"}
Received message: {"category":"Logistica","name":"META"}
Received message: {"category":"Logistica","name":"META"}
Received message: {"category":"Logistica","name":"META"}
Received message: {"category":"Logistica","name":"META"}
Received message: {"category":"Logistica","name":"META"}
Received message: {"category":"Logistica","name":"META"}
Received message: {"category":"Logistica","name":"META"}
Received message: {"category":"Logistica","name":"META"}
Received message: {"category":"Logistica","name":"META"}
Received message: {"category":"Logistica","name":"META"}
Received message: {"category":"Logistica","name":"META"}
```

THANK YOU!