LLMs with tools

Matei Popovici



What admission exams are required for the Computer Science Program at Politehnica Bucharest?

Searching the web …

what type of fruit trees can I grow in the area around Cluj?

Thinking…

Open models

Infrastructure independence

Explainability

Application performance

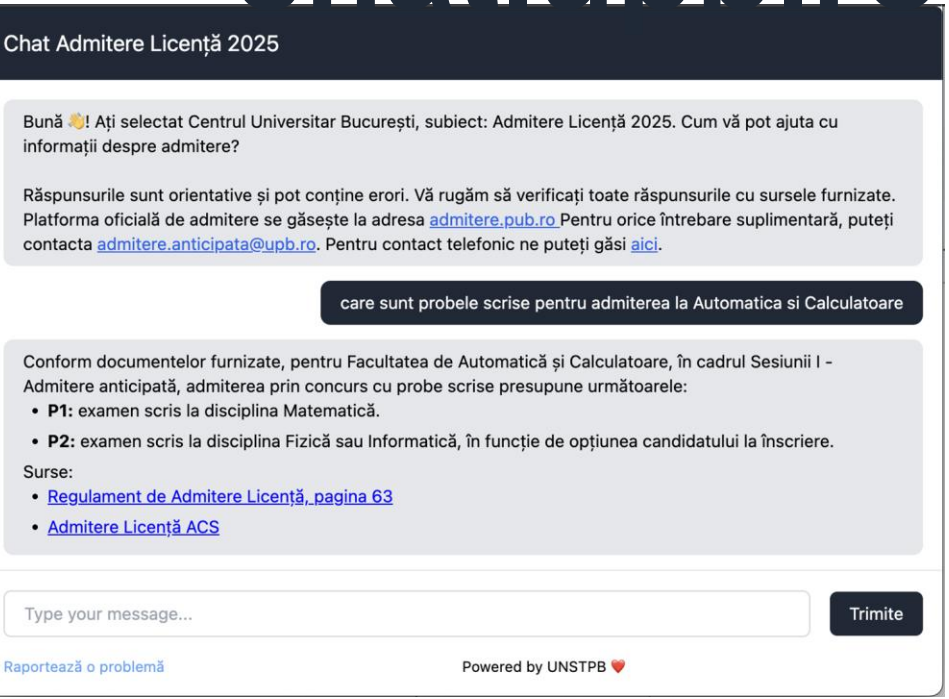
more billion-parameters

What admission exams are required for the Computer Science Program at Politehnica Bucharest?

Searching the web …

Retrieval - augmented generation (RAG)

chat.upb.ro



Vlad Badoiu et al.

All data split into chunks and encoded using an embedding model

We index all chunks using FAISS

User question

Embed question with the same model, compute similarity

Inference with prompt containing top-k similar docs

what type of fruit trees can I grow in the area around Cluj?

Structured data

Dataset diversity

(weather, climate change, agriculture)

Data dependencies

what type of fruit trees can I grow in the area around Cluj?

In order to grow trees in Cluj ...



what type of fruit trees can I grow in the area around Cluj?

In order to grow trees in Cluj consider that the climate around Cluj is moderate continental with 600mm yearly precipitation ...

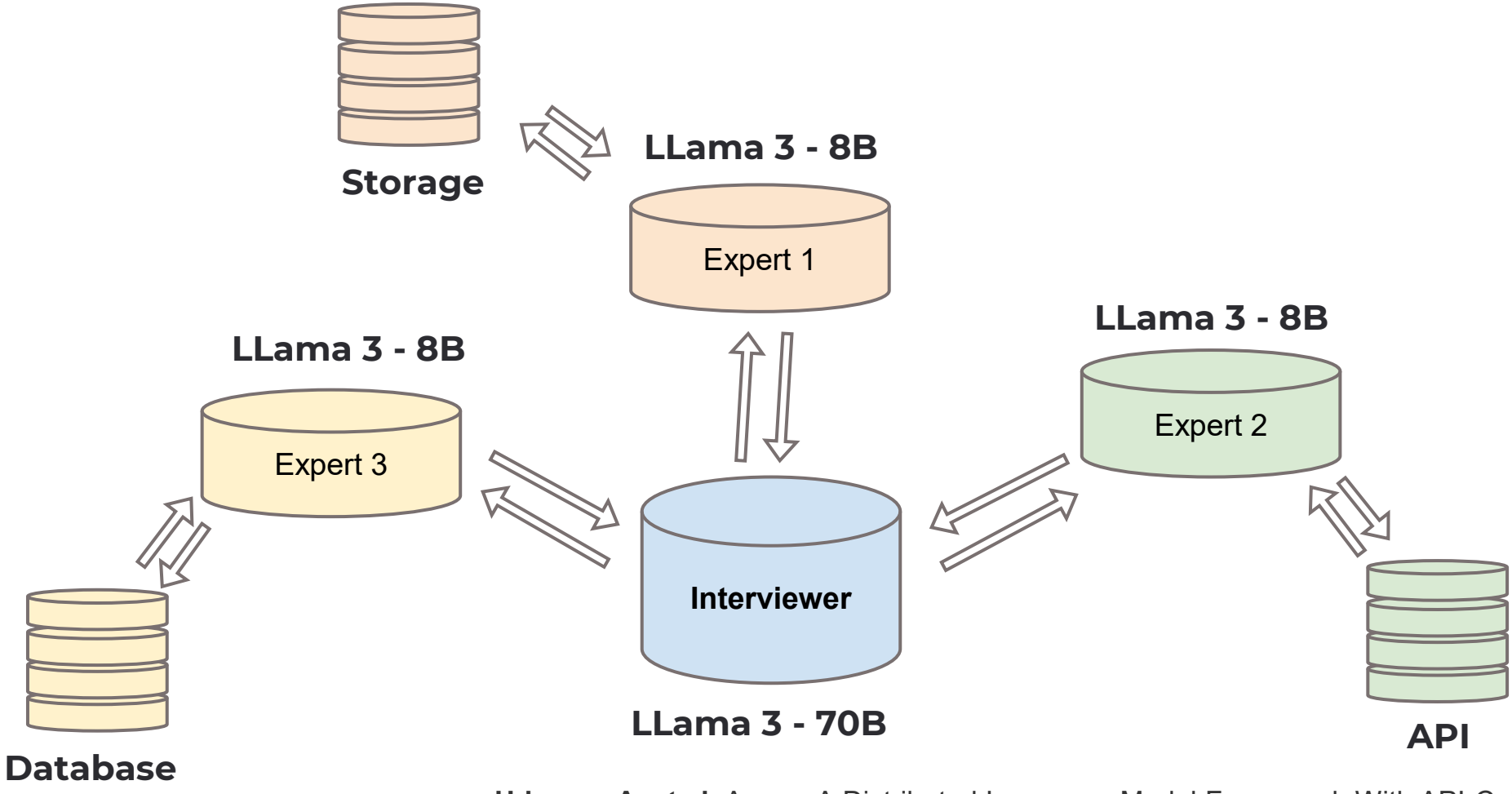
API CALL AGRICULTURE: trees thriving at 600mm precip. …

what type of fruit trees can I grow in the area around Cluj?

In order to grow trees in Cluj consider that the climate around Cluj is moderate continental with 600mm yearly precipitation and peaches require a minimum of 50-75 mm of precipitation annually,

what type of fruit trees can I grow in the area around Cluj?

In order to grow trees in Cluj consider that the climate around Cluj is moderate continental with 600mm yearly precipitation and peaches require a minimum of 50-75 mm of precipitation annually, hence one can grow peaches in areas around Cluj.



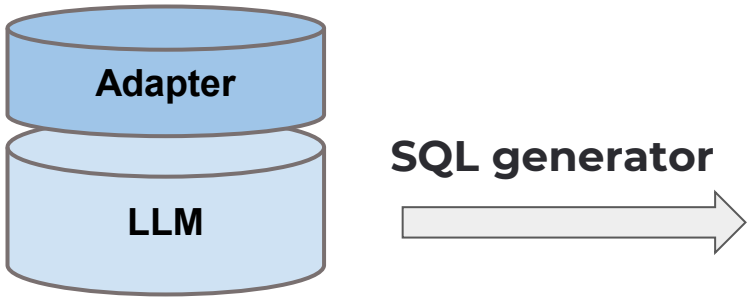
Udrescu A. et al, Agora: A Distributed Language Model Framework With API-Call Support for Integrated Climate Forecasting



Udrescu A., Hontan, V. et al.

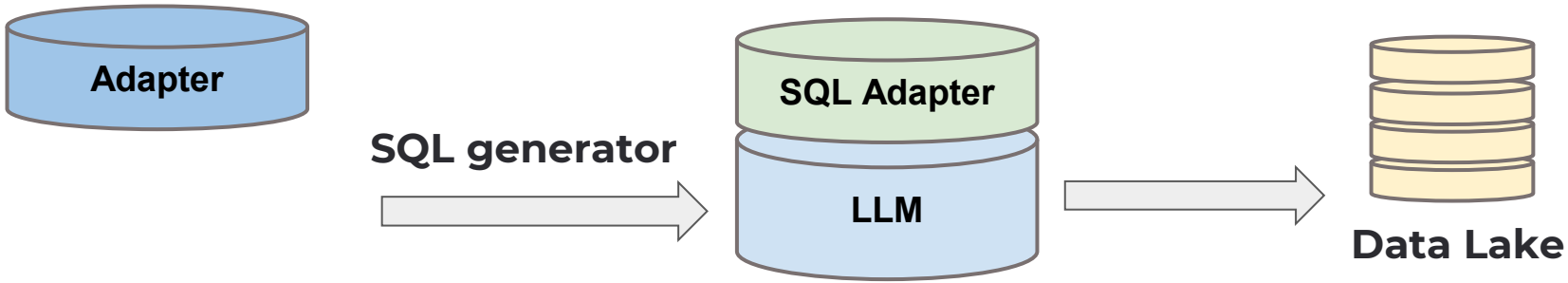
LLMs can also be tools

what is the gender distribution of pacients with sepsis in hospitals from Bucharest?



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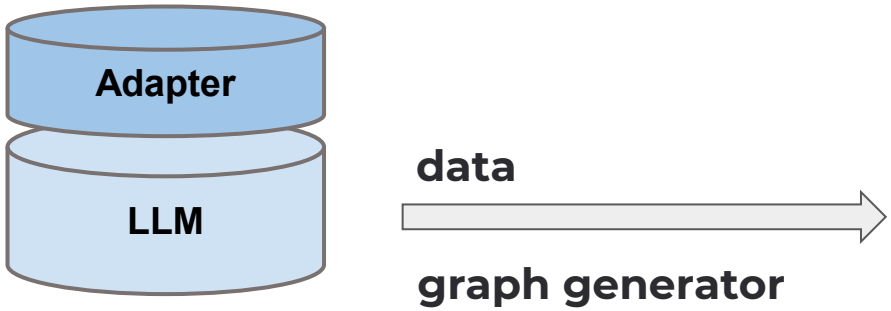
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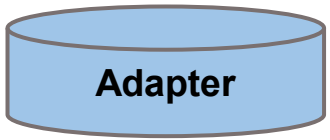
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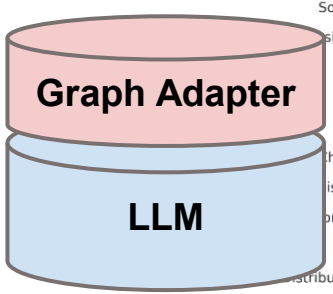
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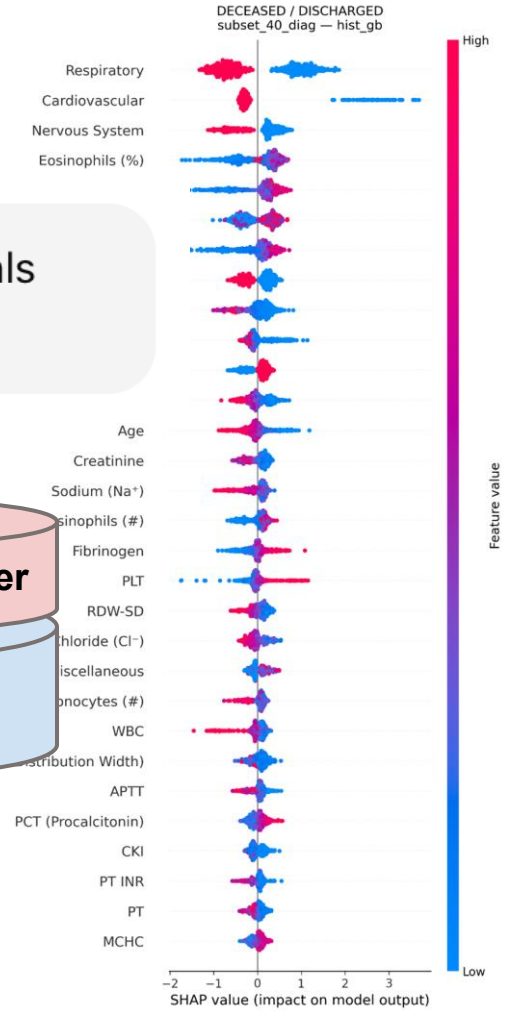
what is the gender distribution of pacients with sepsis in hospitals from Bucharest?



data

graph generator






Prec
Models agreement (%)
COSMO-5
NEMS-4
ARPEGE-25
ARPEGE-40
ICON-7
IFS-HRES
IFS-20
UKMO-10
NEMS2-12
NEMS2-30
AIFS-25
GEM-15
GFS-40
ICON-12
NEMS-12
NEMS-30
NMM-12
Friday
Saturday
Sunday
Monday
Tuesday
Wednesday
Thursday
Wind speed (km/h)
Wind direction
Rel. Hum. (%)
Just now