

Herbal Tea Generator

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Advancing Chinese Medicine Knowledge:



Fine-tuning LLM and RAG for Global Market Growth



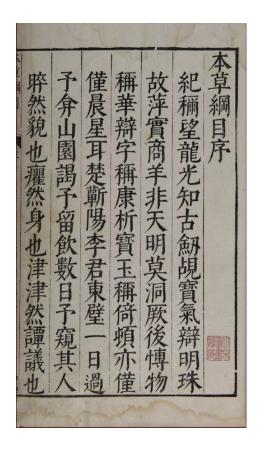
- Herbal Tea Market Growth: **17 billion** by 2028 (USD 12,384 million in 2022)
- TCM Market **USD 322 billion** by 2028 (USD 216,458 million in 2022)



Our Goal: Utilizing LLM and RAG for a Chinese medicine LLM, aimed at making **knowledge accessible to everyone**, addressing significant demand

Problem Statement





Chinese Medicine Paradigm

- 1. **Different Language (difficulty plus Ancient Chinese**, with cultural and historical context)
- 2. **Domain: different medical paradigms** than western medicine concepts (Yin-Yang)
- 3. Limited scientific validation
- 4. Relying on **experienced practitioners**

Technical - Why Fine-tine is needed

- 1. 10,000+ books in ancient Chinese **not public available**
- 2. Personalized solutions (google-search can't give advice based on symptom description)

What we achieved today & Future Work



What we achieved today:

- 700 Ancient Chinese Medicine books, 1.6k herbal/medicine tea formula, 6.2k symptom-treatment samples from hospital records
- 2. Fine tune on mistralai/Mistral-7B-Instruct-v0.2 with hospital records [Dataset a-d] (w/ together.ai)
- **3. RAG** for **herbal tea** recommendation [Dataset e]

What's Next?

- Evaluation (human feedback, benchmark,...)
- 2. Cross-platform corporation (i.e. instruction to real tea)

Datasets

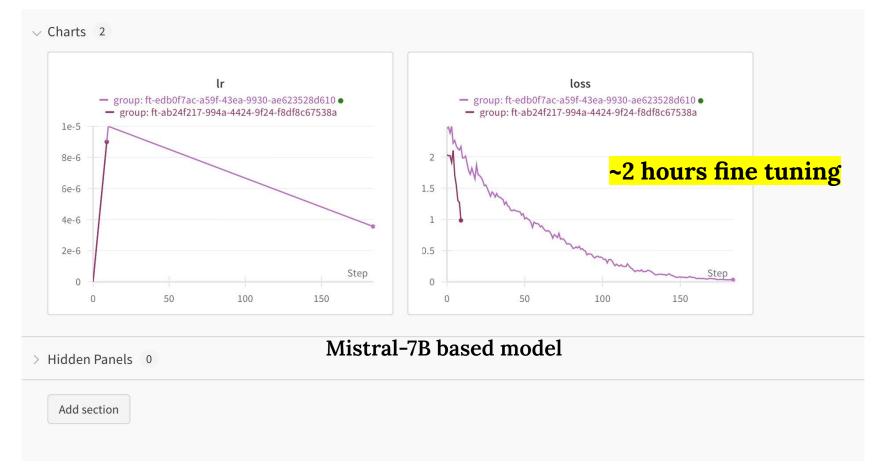


Dataset from TCM research institutes

- a. TCM-A (Traditional Chinese Medicine classics) (Public)
- b. Authorized official medical herbal tea publications.
- c. Traditional Chinese herbal tea recipes, including their medicinal effects, ingredients, indications, preparation methods, and other related information.
- d. Records of patient and doctor diagnoses (including patient's medical history, doctor's diagnosis, prescribed Chinese medications, and follow-up observation results).
- e. 1.6k tea (&substitute) formula

Fine Tuning w/ Together APIs





Pretrained vs Fine-tuned vs Fine-tune+RAG



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----Base model only----
Based on your symptoms of excessive drowsiness and a common cold, I would recommend the following herbal tea:
1. 桔梗 (Cinnamon) 3g
2. 甘菊 (Licorice) 3a
3. 桔子 (Citrus Peel) 3g
4. 枸杞 (Forsythia) 15g
5. 黄连 (Turmeric) 3g
6. 甘草 (Aconite Root, prepared with water) 3g
这些材料都是中医常用的治疗感冒和贪睡的药材。这个茶可以帮助你清热解毒,缓解咽喉痛,减轻疲劳,并提振体力。
To prepare the tea, combine all the ingredients in a pot with about 1.5 liters of water. Bring it to a boil, then reduce the heat and let it simmer for about 30 minutes. Strain the tea and drink it warm, up to 3
cups a day.
Please note that this tea is for general health support and not a substitute for professional medical advice or treatment. If your symptoms persist or worsen, please consult a healthcare professional.
----Finetuned model only----
      、茯苓、橘红、苏梗、陈皮、款冬花、蒌皮、杏仁、蔻仁(研)、竹茹、荷叶蒂(捣)。主治胸中痞闷咳嗽,感冒后遗痰热。 《沈氏尊生》云:"身病,胃不和者不可治。"前议苦辛淡法,蔻仁、荷叶蒂辛味太甚,致胃气不和,故议
用蔻仁泥、荷叶捣,即可去其辛涩之味,而保其疏理之功也。杏仁苦泄,竹茹苦寒,均须配合茯苓等甘草之类,以去其过苦之弊。橘红辛散,款冬花辛润,均宜茯苓等甘润之品以为配合,以去其过辛之弊。此处虽均以甘苦淡辛之品为配合,
殊不为常也。盖由于蔻仁、荷叶蒂辛涩之味用泥、捣以去之,故苦、淡、辛之品乃得相合,而甘味莫可为主也。其于胃不和之症,甘味为主,甘润胃气,胃气畅行,即可使苦、淡、辛、寒诸味得以相合,而胃不适者,可以逐步加减,逐步进
逼,而得到痊愈,此法乃常也。老君亲经试验,诚为确切之经验。故议老君可以此方,并嘱老君宗前辈经验,自觉是否合度,若合度,久服多剂,务使病愈。
达到,断无善者。"为医者、当善其技、当深究其理、才能具备发挥作用之资质、现在老君病痰饮、胸中痞闷咳嗽、咳痰不爽、舌苔薄
----Finetuned model with RAG----
                                                            痰饮脉洪数,咳嗽,倚息不得卧,有汗,胸痹,腰痛,曾吐血三次,所谓三消之候也。与小青龙去麻辛,加枳实、广皮、杏仁、苡仁。
                                                                             二十八日 脉洪数有力,痰饮,咳嗽,胸痹,腰痛,曾吐血,服小青龙两剂,诸症皆减。仍守原法。 桂枝五钱
           则血虚而饮邪未尽也。与《外台》茯苓饮法,去茯苓,加枳实、广皮、杏仁、苡仁。
                              汪 先生
  当属心肾不交,阴虚阳亢之象。辛苦甘药皆已失效,说明患者阴虚阳亢,肝阳偏亢,肝郁化风等病机,当用芳香疏通,疏肝解郁,降逆平肝。方中天麻、钩藤
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Pretrained vs Fine Tuned model





Pretrained Model



Chat

mistralai/Mistral-7B-Instruct-v0.2

最近熬夜敲代码,眼睛都要花了。建议喝什么茶?

你好!当你熬夜敲代码时,最好喝一种能帮助你保持清醒的茶。茶中含有植物化合物,如茶Polyphenols和L-theanine,可以提高注意力和减轻压力。

- 1. 绿茶(Matcha):绿茶富含L-theanine,可以帮助你保持清醒,同时减轻压力。
- 2. 黑茶(Black tea): 黑茶含有一定量的咖啡因,可以帮助提高注意力。
- 3. 嫩茶(Oolong tea):嫩茶含有更多的 Polyphenols,可以帮助你减轻压力和提高注意力。
- 4. 抹茶(Chai tea):抹茶包含多种植物成分,可以帮助你减轻压力,提高注意力,并有 Anti-oxidant 效果。
- 5. 柠檬茶(Lemon tea): 柠檬茶含有多种植物成分,可以帮助你提高注意力、并有 Anti-oxidant 效果。