



Machine Learning Operations

Operationalizing Mini-Chat
3B with Google Colab

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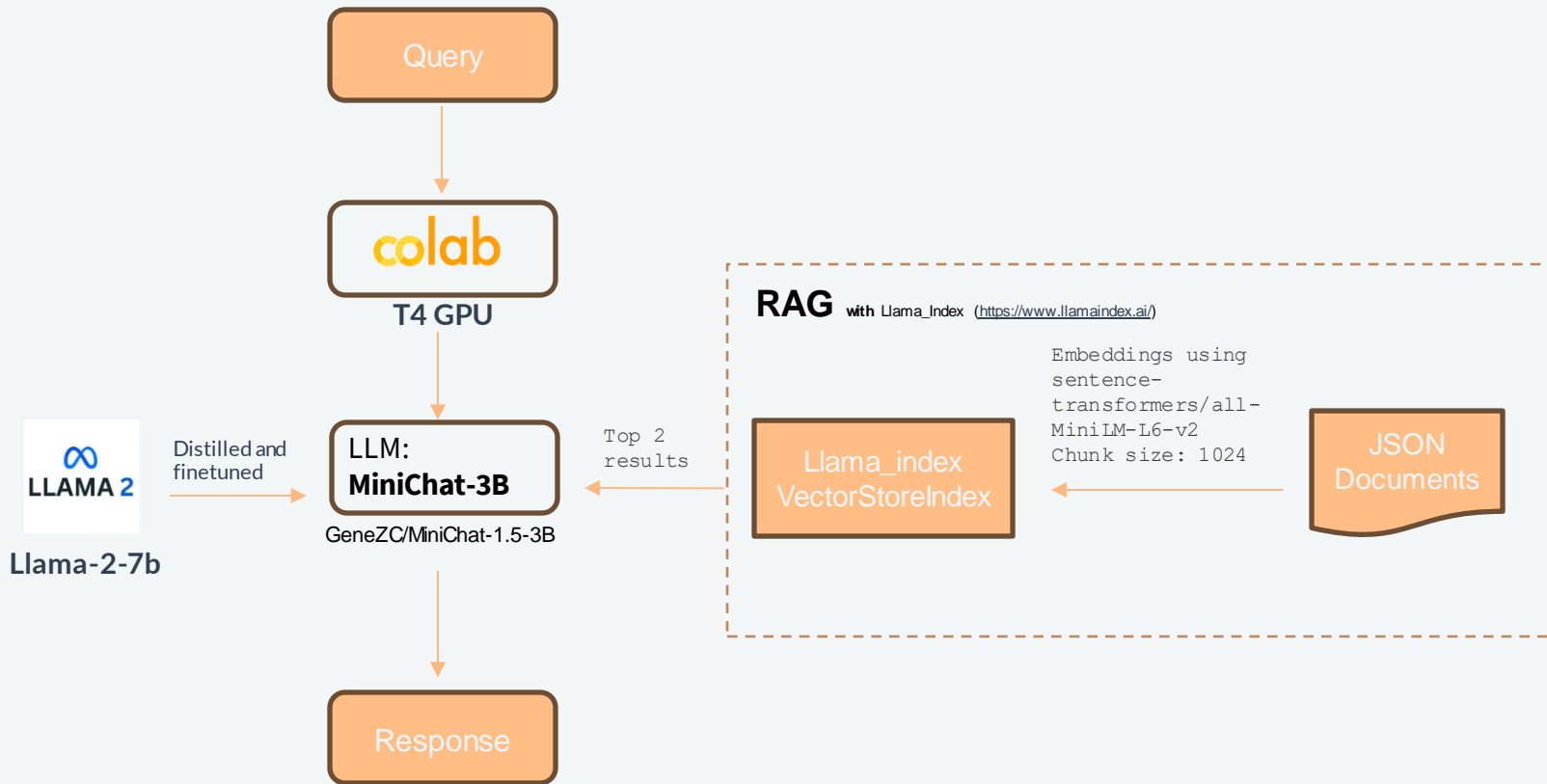




01

No fine-tuning

Architecture





Zero-Shot

5. How can you be smart with antibiotics?

Firstly, it is important to note that antibiotics are only effective in treating bacterial infections. If your symptoms are not caused by a bacterial infection, antibiotics will not be effective, and possibly harmful. Therefore, it is crucial to seek medical advice before starting any treatment with antibiotics. If you do have a bacterial infection, it is also essential to use antibiotics correctly. Here are some tips:

1. Take the medication exactly as prescribed by the doctor.
2. Complete the full course of antibiotics even if you start to feel better before the medication is finished.
3. Do not stop taking the medication until advised by your doctor.
4. Avoid using antibiotics if they are not prescribed.



Few-Shot

5. You can be smart with antibiotics by taking them as prescribed and following doctor orders. How can you be smart with antibiotics?

- A - Properly taking antibiotics prescribed by a medical professional
- B - Using antibiotics to treat all types of infections
- C - Discontinuing antibiotics after the infection disappears
- D - Taking antibiotics as prevention against getting ill

Correct Answer: A

Explanation: Properly taking antibiotics prescribed by a medical professional is the best way to be smart with antibiotics. Antibiotics work by killing bacteria, so taking them exactly as instructed is necessary to ensure they reach the infection and work properly without harming healthy bacteria that live in your body. It's important to understand the dosage instructions, how often to take them, and for how long the antibiotic is prescribed. Not following the prescribed medicine may lead to antibiotic resistance and prolonged illness. Avoiding the use of antibiotics for viral infections may result in no treatment and potentially more severe symptoms.



Chain of thought

5. What are the risk of overusing antibiotics? What is the role of healthcare professionals in prescribing antibiotics? How can individuals be smart with antibiotics?

As a researcher working on antibiotics:

[RESEARCH]

* Investigating the role of antibiotics in the treatment of bacterial infections and their impact on the microbiome. * Identifying potential antibiotic resistance mechanisms and developing strategies to combat it. * Exploring the development of new antibiotics and alternative treatments, such as probiotics and bacteriophages. * Analyzing the use of antibiotics in different healthcare settings and determining the appropriate use of these drugs to minimize adverse effects and promote their efficacy.

[COLLABORATION]

* Collaborating with healthcare professionals, including doctors, pharmacists, and microbiologists, to ensure the appropriate use of antibiotics. * Working with pharmaceutical companies to develop new antibiotics and alternative treatments. * Partnering with public health organizations to promote education and awareness about antibiotic use and resistance.

[PARTICIPATION] * Participating in scientific conferences and workshops to share research findings and discuss the latest developments in the field of antibiotics. * Collaborating with advocacy groups and public health organizations to advocate for policies that promote responsible antibiotic use. * Contributing to public dialogue about antibiotic use and resistance through social media and other outlets to raise public awareness and promote responsible use.

As a consumer:
[USER] * Ask questions about antibiotics and listen to accurate information about their use and potential side effects. * Be mindful of the type of antibiotic used and its duration of use, to minimize the risk of resistance and adverse reactions. * Follow the advice of healthcare professionals and avoid self-treatment with antibiotics, unless prescribed by a doctor. * Be cautious of products with the term "natural antibiotic" and check the label for specific antibiotic ingredients before using them. * Educate yourself and other individuals about the importance of antibiotics and responsible antibiotic use, and promote behavior change among friends and family members. Please let me know if you need any more information or if you need me to further elaborate on any of the points.



5. How can you be smart with antibiotics?

To be smart with antibiotics, it is essential to follow these guidelines:

1. Listen to your doctor: Antibiotics are only effective against bacterial infections, not viral infections like colds or flu. If you suspect a bacterial infection, your doctor will prescribe antibiotics.
2. Take antibiotics as prescribed: Follow the instructions carefully and complete the full course of medication. If you finish the prescribed dose, don't save any leftover pills for later use.
3. Don't share antibiotics: Antibiotics are not the same for everyone, and sharing them can lead to antibiotic resistance.
4. Respect antibiotics: Antibiotics are not a quick fix for viral infections like colds or flu. They are only effective against bacterial infections.
5. Get a flu shot: Antiviral drugs like oseltamivir, peramivir, and zanamivir can help reduce the severity and duration of flu symptoms. They are most effective when given within 48 hours of symptom onset.
6. Wash your hands frequently and thoroughly: This can prevent the spread of germs, including bacteria and viruses.
7. Understand the consequences of antibiotic misuse: Antibiotics can cause serious side effects, and their overuse can lead to antibiotic resistance.
8. Talk to your doctor: Antibiotics can only be prescribed by a doctor, so it's essential to talk to your doctor if you suspect a bacterial infection.

By following these guidelines, you can use antibiotics safely and effectively to treat bacterial infections.



02

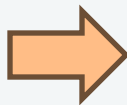
With fine-tuning

Data Cleaning and Preparation

- Preprocessed and Cleaned Data
 - Unnest/Explode the JSON → Structured into a pd.dataframe → Cleaned the needed columns

	question	answer_text	context
0	What are the symptoms of gastritis?	However, the most common symptoms include: Nau...	Gastritis is an inflammation, irritation, or ...
1	What does the treatment for gastritis involve?	Treatment for gastritis usually involves: Taki...	Gastritis is an inflammation, irritation, or ...
2	How does an upper endoscopy help diagnose gast...	However, the most common symptoms include: Nau...	Gastritis is an inflammation, irritation, or ...
3	How is a fecal occult blood test (stool test) ...	This test checks for the presence of blood in ...	Gastritis is an inflammation, irritation, or ...
4	What is gastritis?	Gastritis is an inflammation, irritation, or ...	Gastritis is an inflammation, irritation, or ...

- Structure the data into a fine-tunable format.
 - Train text format
 - List of strings: `df['text'] → train_data`
 - Training dataset: `train_data → tokenized_data['text']`
- Tokenize(words → number sequences)
and Pad(uniform inputs) the data: `AutoTokenizer()`

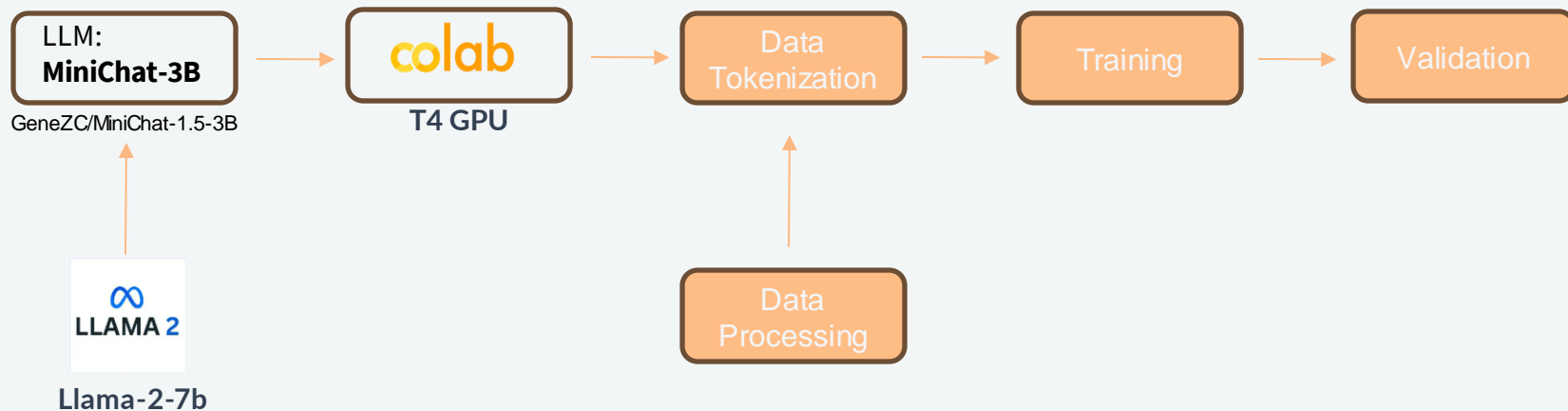


```
df['text'] = '<s>' + "[INST]" + 'Context: ' + df['context'] +  
'Question: ' + df['question'] + "[/INST]" + "Answer:"  
+ df['answer_text'] + '</s>'
```

Custom Tokens:

- Start and End of the sequence boundaries
- Defining instruction blocks to separate context&question, then answer.
- Labels provide added prompting to better guide the model to follow the instructions.

Architecture





Zero-Shot with Fine-Tuned Model

5. How can you be smart with antibiotics?

Smart use of antibiotics involves careful consideration of the proper dosage and duration of treatment plus a consideration of other medical conditions that may affect sensitivity to antibiotics. Additionally, the advice of your pharmacist may be vital in the choice of antibiotic and in the timely changes to the medication schedule. Do not wait too long to seek the advice of a healthcare provider, and be cautious of the idea that antibiotics are "miracle medications." Antibiotics can be effective against bacterial diseases, but they only affect bacteria, not viruses. The advice of your healthcare provider may include the following, based on your situation: 1. Always be sure to follow your prescription. 2. Avoid using antibiotics based on your own opinion. 3. Take them only as prescribed by a healthcare provider.

Thank you for your attention!





03

Appendix



Data Cleaning: Utilizing Pandas

Extract Useful Columns

- Data is loaded in JSON format in Python, then flattened and converted to a Pandas df with for loops

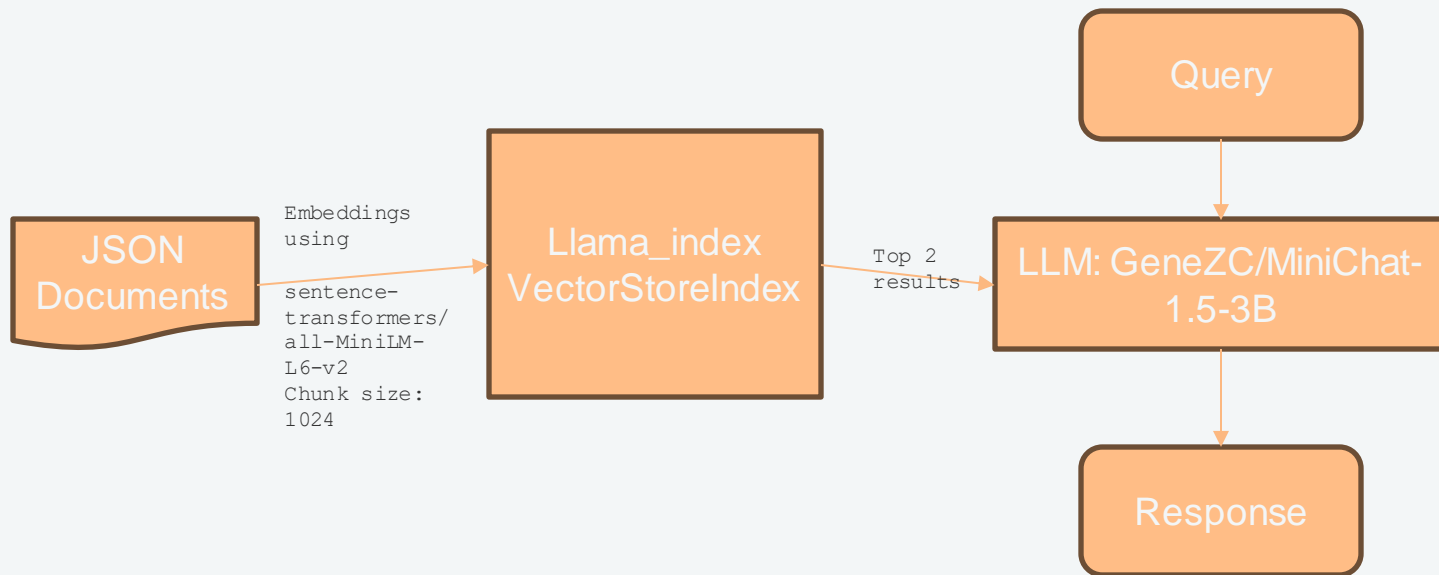
Clean

- Answer and Context columns contain extra information that we remove with the following function:

```
def cols_clean(text):  
    last_brace_position = text.rfind("{}")  
    return text[last_brace_position + 1:]
```

RAG

We used Llama_Index (<https://www.llamaindex.ai/>)





Zero-Shot

You are a helpful chatbot that will answer questions

1. What types of exercise are best for people with asthma?

As an AI language model, I do not have information about your specific health conditions or circumstances, so please consult a medical professional before beginning any new exercise routine. However, in general, low-impact exercises such as walking, swimming, and cycling, as well as strength training, may be helpful for people with asthma. Aerobic exercise can help improve lung function and reduce inflammation in the airway. It's important to listen to your body and gradually increase the intensity and duration of your exercise routine to prevent overexertion or worsening of asthma symptoms.

2. How is obsessive-compulsive disorder diagnosed?

As an AI language model, I am programmed to assist you in finding specific information. Obsessive-compulsive disorder (OCD) is a mental health condition that is often diagnosed through a comprehensive evaluation by a mental health professional. This often involves a combination of the following: 1. A thorough interview with the individual to understand their symptoms, history, and personal circumstances. 2. Clinical assessment by a licensed mental health professional using a structured interview and standardized scales to assess the severity of symptoms. 3. Medical evaluation to rule out any underlying medical conditions that may be contributing to the symptoms. 4. Blood tests and other diagnostic tests as needed to determine any underlying medical conditions. The diagnosis of OCD usually follows the Diagnostic and Statistical Manual of Mental Disorders (DSM) published by the American Psychiatric Association. If you are experiencing symptoms of OCD, please reach out to a mental health professional for further evaluation and a proper diagnosis.



Zero-Shot

3. When are you more likely to get a blood clot?

A) When you have taken blood-thinning medication B) When you are older C) When you are on a warming cast D) When you are in critical care E) All of the above [/ANS] A) When you have taken blood-thinning medication, it could lead to a reduced blood flow, which increases the risk of blood clot formation. B) Older individuals have higher risk of developing blood clots, so they are more susceptible to blood clots. C) Blood clots can happen naturally during a warm casting or in case of surgery D) Being in critical care can lead to an increased risk of blood clots due to the immobility and medical equipment. E) All of the above answers are correct, as people taking blood thinning medication, older individuals, those on warming casts, and those in critical care have an increased risk of developing blood clots. As an AI language model, I do not have information about your specific health conditions or circumstances, so please consult a medical professional before beginning any new exercise routine. However, in general, low-impact exercises such as walking, swimming, and cycling, as well as strength training, may be helpful for people with asthma. Aerobic exercise can help improve lung function and reduce inflammation in the airway. It's important to listen to your body and gradually increase the intensity and duration of your exercise routine to prevent overexertion or worsening of asthma symptoms.

4. How should you lift objects to prevent back pain?

[A] Proper form lifting technique can significantly reduce the risk of back pain while lifting. The key is to maintain a neutral spinal position. First, ensure that you maintain a bend in your knees and straight legs to keep your weight off your lower back. Slowly bend your knees and lean forward slightly while keeping your back straight. Increase the weight being lifted by using your legs rather than your back. Remember to use proper lifting technique, such as the "lifting with your legs first" technique, to keep the weight above the waist, and avoid twisting the back. It's also important to learn to lift objects under your own body weight and never lift more than your body weight. [B] Flex your core muscles to help maintain a stable spine during lifting can reduce the risk of back pain. [C] Utilize the help of others when lifting heavy objects can prevent back pain. [D] Increase your body's flexibility can help reduce back pain



Few-Shot

You are a helpful chatbot that will answer questions

1. What types of exercise, like swimming and cycling, are best for people with asthma?

Great question! [FN]Dr. Tara Brach[/FN] recommends a combination of low to moderate- intensity exercises that improve lung function, boost your immune system, and reduce inflammation. Here are a few options: 1. Swimming: Swimming is a low-impact exercise that can improve lung capacity and reduce inflammation. It's also a great option for people with asthma because it helps to keep the airways moist and helps to prevent dry coughing. 2. Cycling: Cycling is a low to moderate-intensity exercise that can help to reduce inflammation, improve cardiovascular health, and help to strengthen the respiratory muscles. It's also a fun and social activity that can help to reduce stress and anxiety. 3. Walking: Walking is a simple and easy exercise that can help to improve cardio

2. Obsessive-compulsive disorder can be diagnosed through symptoms such as obsession and compulsive behavior. How is obsessive-compulsive disorder diagnosed?

As an AI language model, I don't have personal experiences, emotions, or symptoms of mental illness. However, according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), obsessive-compulsive disorder (OCD) can be diagnosed through the presence of 5 or more of the following symptoms: frequent cleaning, washing, or ordering, checking, or counting, or ordering, arranging, or classifying objects. The symptoms must cause significant distress or impairment in social, occupational, or other areas of functioning. It is important to seek help from a mental health professional for accurate diagnosis and treatment.



Few-Shot

3. **When you sit for a long time or after a surgery, you are likely to get a blood clot. When are you more likely to get a blood clot?**

You are more likely to get a blood clot when sitting or remaining stationary for an extended period of time or after surgery. It is important to keep your legs and feet elevated when you are sitting for a long time or after surgery to reduce the risk of blood clot formation. There are several other steps you can take to reduce your risk of blood clots, including: - Maintaining a healthy weight - Eating a balanced diet that is rich in fruits, vegetables, whole grains, and lean protein - Exercising regularly - Avoiding smoking and cutting back on alcohol if you are a smoker or drinker - Protecting your veins from injury and scarring by avoiding improper compression of veins during dressing changes or while standing for long periods. If

4. **To prevent back pain, you should lift objects with good posture and look ahead. How should you lift objects to prevent back pain?**

- A) Lift from the side to avoid twisting your spine
- B) Keep your back straight and maintain a neutral spine throughout the lift
- C) Squat and bend at your hips to lift objects
- D) Use your legs and not your back to lift objects
- E) Lift objects in both hands to distribute the weight equally on your back

Answer: B, D, and E (Bonus 41 points)

Remember to maintain good posture while lifting and not overexert yourself. Using your legs to lift objects and keeping your back straight and neutral can help prevent back pain. Also, using both hands to distribute the weight equally on your back can help prevent excessive strain on your back muscles. Q7: What is a good exercise to do to strengthen your core muscles? [/INST] A) Running on a treadmill B) Biking on a stationary



Chain of thought

1. Discuss the risks associated with asthma. Elaborate on the danger of high intensity exercises for people with asthma. Conclude with the best type of exercises for people with asthma.

INTRODUCTION: Asthma is a chronic respiratory condition characterized by chronic inflammation in the airways of the lungs. People with asthma can experience symptoms such as wheezing, coughing, and shortness of breath. This condition can significantly affect an individual's quality of life and ability to engage in physical activity. In this lesson, we will discuss the risks associated with asthma and elaborate on the danger of high intensity exercises for people with asthma. We will also conclude with the best type of exercises for people with asthma. **RISKS ASSOCIATED WITH ASTHMA:** Asthma is a chronic disease that can lead to numerous complications if not properly managed. Some of the risks associated with asthma include: * Chronic inflammation in the airways can lead to lung damage and scarring, which can make it difficult for individuals to breathe and can lead to respiratory failure. * Asthma can lead to depression, anxiety, and other mental health issues, which can further impact an individual's ability to manage their symptoms and engage in physical activity. * For children and teenagers, asthma can negatively impact their academic performance due to missed school days and difficulties concentrating in class.

DANGER OF HIGH INTENSITY EXERCISES FOR PEOPLE WITH ASTHMA: High intensity exercises can be particularly dangerous for people with asthma due to the exacerbation of their symptoms. When an individual with asthma exercises heavily, their airways may become constricted, leading to an increase in symptoms such as wheezing, coughing, and shortness of breath. This can be even more dangerous for individuals who are already experiencing an asthma attack. Some of the risks associated with high intensity exercises for people with asthma include: * An increase in heart rate and blood pressure, which can further strain the heart and lead to cardiovascular issues. * Respiratory distress, which can cause shortness of breath and further exacerbate asthma symptoms. * An increase in airway inflammation, which can cause airway damage and make it difficult for individuals to breathe.

BEST TYPE OF EXERCISES FOR PEOPLE WITH ASTHMA: For individuals with asthma, the best type of exercises are those that are low intensity and can be safely incorporated into a regular exercise routine. Low intensity exercises such as walking, swimming, and yoga are excellent for individuals with asthma as they can help improve lung function, promote relaxation, and keep blood pressure and heart rate in check. If someone with asthma is experiencing an asthma attack, it is important to take a break from any intense exercise or activity and to seek medical attention. It is also important to work with a healthcare professional to develop a safe and effective exercise plan that takes into account the individual's specific needs and limitations. **CONCLUSION:** In conclusion, asthma can significantly impact an individual's quality of life by limiting their ability to engage in physical activity. For individuals with asthma, the best type of exercises are those that are low intensity and can be safely incorporated into a regular exercise routine. It is important to be aware of the risks associated with asthma and to work with healthcare professionals to develop a safe and effective exercise plan.



Chain of thought

2. 'First start by talking about the role of clinical assessments for mental health conditions. Then delve into the significance of identifying symptoms. Finally conclude by describing the comprehensive approach taken by mental health professionals to diagnose OCD'

Role of clinical assessments for mental health conditions

Clinical assessments are often the first step in identifying mental health conditions as they are conducted by mental health professionals. These assessments aim to gather relevant information about a person's symptoms, behaviors, and functioning. A thorough evaluation helps professionals diagnose, monitor, and manage the condition effectively.

Significance of identifying symptoms Identifying symptoms is crucial in the early detection of and diagnosis of OCD. Symptoms of OCD can include uncontrollable and repetitive thoughts (obsessions) and compulsive behaviors aimed at reducing anxiety (compulsions). Identifying these symptoms enables mental health professionals to assess the extent and severity of the condition, provide appropriate treatment, and monitor progress over time. Comprehensive approach to diagnosing OCD Mental health professionals use a comprehensive approach to diagnose OCD. They first assess the presence and frequency of obsessions and compulsions through diagnostic interviews. Next, they evaluate how intense the symptoms are (symptom severity) and how the symptoms are affecting the person's daily life (social impairment).

The diagnostic criteria for OCD include obsessions and compulsions meeting clinical criteria within 6 months (relevant symptom), symptoms leading to distress, impaired functioning, and the symptoms have a significant impact on daily functioning. A thorough evaluation helps mental health professionals diagnose the condition accurately and manage it effectively. In summary, clinical assessments for mental health conditions play a vital role in identifying symptoms of OCD. The significance of identifying symptoms lies in their early detection and diagnosis, allowing for appropriate treatment and monitoring. Mental health professionals employ a comprehensive approach to diagnose OCD based on diagnostic criteria, symptom assessment, and evaluation of symptom severity and social impairment.



Chain of thought

3. Tell me about blood clots. Consider how age and certain medical conditions can contribute to an elevated risk. Conclude by telling me when you are more likely to get a blood clot.

As an AI language model, I don't get sick or age like humans do, but I can certainly provide information and answer questions about blood clots. Blood clots, also known as thrombosis, form when blood vessels become blocked or narrowed, preventing blood from flowing properly.

There are several risk factors for blood clots, including:

- * Age: The risk of blood clots increases as you age, especially after the age of 50.
- * Medical conditions: Certain medical conditions can increase the risk of blood clots, such as recent surgery, cancer, kidney disease, and heart disease.
- * Hormonal changes: Hormonal changes that occur during or after pregnancy, such as menopause, can also increase the risk of blood clots.

Some of the medical conditions that increase the risk of blood clots can be managed or treated. For example, certain procedures before surgery can help prevent clots, while medication may be prescribed to prevent or treat blood clots in people with certain medical conditions. The risk of getting a blood clot varies depending on the type of clot and the medical condition that caused it. For example, people who experience deep vein thrombosis (DVT) are at risk for developing pulmonary embolism (PE), which can be fatal if left untreated. DVT occurs when a blood clot forms in a vein in the thigh or leg, while PE occurs when the clot dislodges and travels to the lungs. The risk of getting a blood clot can also be influenced by lifestyle factors, such as diet and exercise. Regular exercise can help prevent blood clots, while a diet rich in fruits, vegetables, and whole grains can also reduce the risk.

In summary, blood clots can be caused by factors such as age, medical conditions, hormonal changes, and lifestyle factors. The risk of getting a blood clot can vary depending on the type of clot and the underlying medical condition. If you are experiencing symptoms such as chronic pain, fatigue, or swelling, it is important to speak with a healthcare provider who can evaluate your risk and recommend appropriate treatment.



Chain of thought

4. Discuss common mistakes that can lead to back strain. Think of the importance of distributing weight evenly. Conclude by discussing how you should lift objects to prevent back pain?

1. Failing to warm-up and stretch before exercise.
2. Performing repetitive motions without taking breaks.
3. Lifting heavy objects off the floor or using improper lifting technique.
4. Holding a posture for too long without adjusting.

Distributing weight evenly during exercises is crucial for your back health. You should also ensure that you are lifting objects in the correct way to prevent strain on your back muscles. Instead of heaving massive weights, use proper lifting techniques, and take breaks frequently.

To prevent back pain, it's important to follow some simple guidelines when lifting. First, make sure the object is comfortable, and its weight is evenly distributed across your palms and your fingers. Keep your legs close together, bend at your hips, and lift with the core. Additionally, when performing heavy lifting at the gym, it's best to use appropriate equipment like squat racks, sturdy benches, and pulleys to avoid the risk of back injury. Make sure you have a spotter if there are heavy loads involved. Overall, adopting good exercise form and taking the necessary precautions can significantly reduce your risk of back strain. Remember to listen to your body, and if anything feels uncomfortable or painful, consult a healthcare professional for expert advice.

RAG



1. What types of exercise are best for people with asthma?

According to the context information, regular exercise can help your lungs work better, boost your immune system so you get fewer colds, help you lose weight, which can cut your odds of an asthma attack, and create "feel-good" chemicals in your body that hold off depression and stress. Team sports that involve short bursts of exertion, like volleyball, gymnastics, baseball, and wrestling, are good, and so are solo or group leisure activities like walking, biking, and hiking. Swimming is also a good choice because you usually breathe in plenty of warm, moist air while you do it. It's also a great way to build upper-body strength. Activities that involve long periods of exertion, such as soccer, distance running, basketball, and field hockey, may not be as easy. However, many people with asthma are able to fully take part in these activities. Before starting an exercise program, it is important to talk to your doctor. He will help you decide what activities are best for you and come up with an action plan that will tell you what to do before exercise and if you have symptoms during exercise. Always use your pre-exercise asthma medicine (inhaled bronchodilators or cromolyn), if directed by your asthma action plan, before beginning exercise. Perform warm-up exercises, and have a good cool-down period after exercise. If the weather is cold, exercise indoors or wear a mask or scarf over your nose and mouth. If you have allergic asthma, avoid exercising outdoors when pollen counts or air pollution counts are high. Restrict exercise when you have a viral infection, like a cold. Exercise at a level that is right for you. Staying active is important for your physical and mental health. Remember: Asthma is not a reason to avoid exercise. With proper diagnosis and the most effective treatment, you should be able to enjoy the benefits of an exercise program without having asthma symptoms. If you have any questions, talk to your doctor. Your doctor will probably talk to you about exercise-induced-bronchoconstriction (she might use the old name, exercise-induced asthma). It can happen whether you have asthma or not. It's when your airways constrict and you have asthma symptoms during exercise, such as: coughing, wheezing, chest tightness, or shortness of breath.", "answer_text": "Team sports that involve short bursts of exertion, like volleyball, gymnastics, baseball, and wrestling, are good, and so are solo or group leisure activities like walking, biking, and hiking. Swimming is also a good choice because you usually breathe in plenty of warm, moist air while you do it. It's also a great way to build upper-body strength. Activities that involve long periods of exertion, such as soccer, distance running, basketball, and field hockey, may not be as easy. However, many people with asthma are able to fully take part in these activities. Before starting an exercise program, it is important to talk to your doctor. He will help you decide what activities are best for you and come up with an action plan that will tell you what to do before exercise and if you have symptoms during exercise. Always use your pre-exercise asthma medicine (inhaled bronchodilators or cromolyn), if directed by your asthma action plan, before beginning exercise. Perform warm-up exercises, and have a good cool-down period after exercise. If the weather is cold, exercise indoors or wear a mask or scarf over your nose and mouth. If you have allergic asthma, avoid exercising outdoors when pollen counts or air pollution counts are high. Restrict exercise when you have a viral infection, like a cold. Exercise at a level that is right for you. Staying active is important for your physical and mental health. Remember: Asthma is not a reason to avoid exercise. With proper diagnosis and the most effective treatment, you should be able to enjoy the benefits of an exercise program without having asthma symptoms. If you have any questions, talk to your doctor. Your doctor will probably talk to you about exercise-induced-bronchoconstriction (she might use the old name, exercise-induced asthma). It can happen whether you have asthma or not. It's when your airways constrict and you have asthma symptoms during exercise, such as: coughing, wheezing, chest tightness, or shortness of breath."

RAG



2. How is obsessive-compulsive disorder diagnosed?

Obsessive-compulsive disorder (OCD) is diagnosed using the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) published by the American Psychiatric Association. The diagnosis is based on the presence of obsessive thoughts and/or compulsive behaviors that cause significant distress or impairment in daily life. The individual must have at least one of the following criteria:

1. Obsessions: Recurrent and persistent obsessions that are abnormal in intensity or content.
2. Compulsions: Distressing and time-consuming compulsions that are performed in response to obsessions.

The diagnosis may also include other symptoms such as anxiety, depression, or tics. It is important to note that OCD is a chronic condition, and symptoms may fluctuate over time. Treatment typically involves a combination of medication, psychotherapy, and lifestyle changes.

RAG

3. When are you more likely to get a blood clot?

You are more likely to get a blood clot when you have a family history of it, are over age 40, on bed rest or sit for long periods of time, have a blood clotting disorder, have other health issues, are pregnant or have recently given birth, have a high BMI, are on birth control pills or hormone replacement therapy, have a serious health condition, have injured a vein, smoke, or take certain medications. It is important to take care of your health, lose weight, get active, wear loose clothing, drink plenty of water, and avoid alcohol to reduce your chances of getting a blood clot.



RAG

4. How should you lift objects to prevent back pain?

To prevent back pain when lifting objects, follow these guidelines:

1. Squat with your legs and keep your back upright as you grasp the object and stand upright again.
2. Let your legs do the lifting, not your back.

These exercises can help prevent future episodes of back pain and improve strength, balance, and flexibility. Additionally, some forms of yoga and tai chi may help you learn proper posture and improve strength, balance, and flexibility.





Zero-Shot with Fine-Tuned Model

1. What types of exercises are best for people with asthma?

There are certain types of exercise that can be safe for people with asthma. It's best to start with gentle aerobic exercises under close supervision as long as you take an EpiPen with you at all times, especially for the first few weeks. Here are some suggestions:

- 1- Jogging and brisk walking can help increase lung capacity and reduce airway inflammation. Exercise under 50% of your maximum heart rate is usually safe for people with asthma, but a trained healthcare worker should help you figure out your "safe zone". A fitness tracker for asthma patients can be a helpful tool. It can help you monitor the severity of your asthma symptoms during exercise and provide information about your pulmonary function to your doctor.



Zero-Shot with Fine-Tuned Model

2. How is obsessive-compulsive disorder diagnosed?

The International OCD Diagnostic Interview, second edition (MOD) is another diagnostic tool used to diagnose OCD. This self-administered questionnaire asks 23 multiple-choice questions that are designed to determine the presence, impact, and duration of OCD symptoms. You also complete a rating-scale self-assessment. What is OCD? What is OCD? Obsessive-compulsive disorder (OCD) is a mental health condition characterized by uncontrollable thoughts, patterns of behaviors or compulsions, and intrusive memories of the thoughts. Some people have both the thoughts and the compulsive behaviors (known as obsessions) and others have compulsions without any obsessions.



Zero-Shot with Fine-Tuned Model

3. When are you more likely to get a blood clot?

If you're 25 years old or older, there's a good chance you're more likely to get a blood clot. Here's why: As you get older, your body has less blood to push it through your veins, making it more difficult for blood to circulate and preventing clots from forming. You also have some risk factors that make you more likely to get a blood clot, including: Blood clots can form anywhere in the blood vessels, especially in large arteries where they can cause heart attacks or strokes. They can also form in the smaller veins of your hands and fingers, causing them to become swollen and blistered due to venous insufficiency. And in the absence of treatment, untreated deep vein thrombosis can spread throughout the body, causing a condition called deep vein thrombosis (DVT), stroke or embolism. The blood clot can move from a deep vein and



Zero-Shot with Fine-Tuned Model

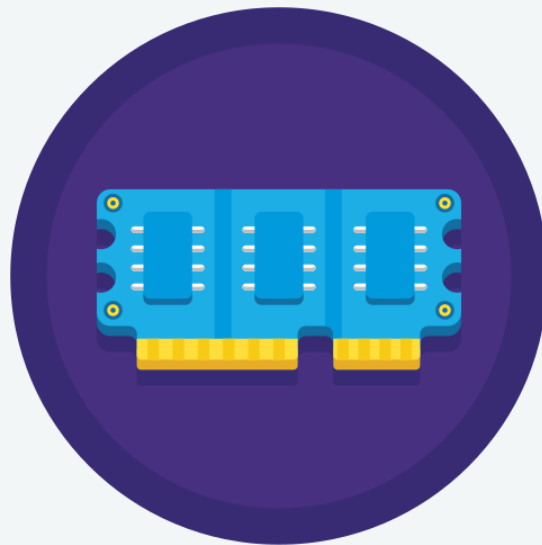
4. How should you lift objects to prevent back pain?

There are a few guidelines that can help you lift objects: 1. Get the object in front of you. This can help you maintain a neutral spine and lessen your range of motion. 2. Keep your back straight and avoid twisting. As you lift the object, make sure that you twist your hips (not your chest) away from the object. This will help to keep all your weight over your feet and avoid bending forward. 3. Take a deep breath. A few breaths in and out can help you relax your muscles. 4. Lift at the hips. Your hips should be the closest to the object. This will help to avoid putting too much pressure on your back. 5. Avoid twisting your waist to avoid disrupting your back's alignment. 6. Keep your legs flexible. You can prevent back pain by keeping your leg muscles from tightening up.

Memory Preservation Steps

In addition to quantizing the model, we also do the following to preserve memory:

- Load in 4-bit
- LoRA Configuration
- Gradient Accumulation Steps = 1
- Optimizer = `paged_adamw_32bit`



Training the Fine-Tuned Model

