

# UNLOCK A+ GRADES WITH CHATGPT

Supercharge your
Study Sessions with
GenAl
~Oshi Garg

# **CONTENTS**



- 1 What is GenAl?
- 2 What is ChatGPT
- **3** Leveraging GPT for Academics
- 4 Ethical Concerns about Al
- **5** Q/A

# WHAT IS GENERATIVE AI?

**Generative Artificial Intelligence (AI)** refers to the broader category of AI that is used to generate new content.

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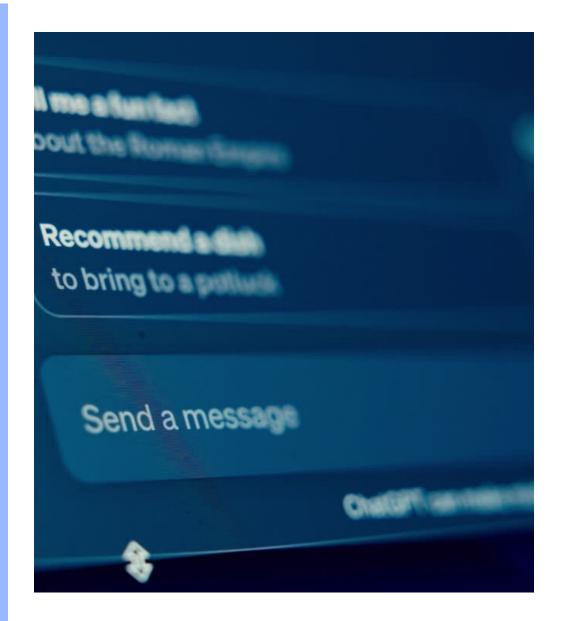


### **WHAT IS CHATGPT**

Specific implementation of GenAl developed by OpenAl

**Text-based** conversational interactions

Informative answers to **user prompts** 

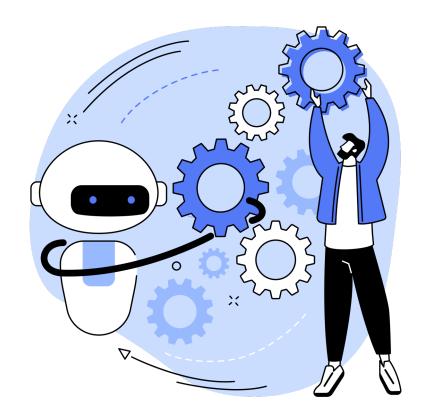


### **HOW CAN CHATGPT HELP YOU GET A+**

Explanation of Topics

Creating summaries

Generating questions



Customizing Study Plans

Brainstorming essay ideas

Outline for Research Papers

# HOW CAN WE USE CHATGPT FOR EXPLANATION EFFECTIVELY?

There are many exciting applications of using GPT creatively for explanation. Let's take a look at some of them.











https://poe.com

Scan the QR Code to get the Prompts so we can work hands-on!

We'll be using Poe for ChatGPT.
Enter URL and Login

# WHILE REVIEWING SLIDES

You can use GPT for **instant explanation**.

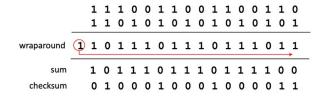
Just COPY PASTE the slide.

Prompt: 'I do not understand. Can you please explain so I grasp the concept fully.'

Let's take a look at the example

#### Internet checksum: example

#### example: add two 16-bit integers



Note: when adding numbers, a carryout from the most significant bit needs to be added to the result

I do not understand at all what is going on here in my COMP3234 Computer Networks slide. Can you please explain it so I understand it fully?





This slide is demonstrating the concept of an Internet checksum, which is a simple errordetection mechanism used in computer networks. The example provided shows how to calculate the checksum for adding two 16-bit integers.

#### The key steps are:

- 1. The two 16-bit integers are represented in binary.
- 2. The "wraparound" row calculates a partial checksum by taking the one's complement of the sum of the binary digits in each column.
- 3. The "sum" row adds the two binary numbers.
- 4. The "checksum" row shows the final checksum, which is the one's complement of the sum.

The idea is that when transmitting data over a network, the checksum can be included and verified by the receiver to detect if any errors occurred during transmission. If the received checksum does not match the calculated checksum, the receiver knows the data is corrupted.

The note at the bottom also points out that when adding numbers, a "carryout" from the most significant bit needs to be added to the result, which is an important detail in the checksum calculation.

<sup>\*</sup> Check out the online interactive exercises for more examples: http://gaia.cs.umass.edu/kurose\_ross/interactive/

# SPECIFIC DOUBTS--24/7 TUTOR



You can use GPT for instant explanation.

#### Pinpoint the specific topic

Prompt: 'I'm confused about XYZ.

Can you explain it with an
example?'

Let's take a look at the example



I'm confused about how subnetting works. Can you explain it with an example?

Assistant Poe ...

Certainly! Subnetting is a method used in networking to divide a larger network into smaller, manageable sub-networks (subnets). This helps improve performance and security while making IP address management more efficient.

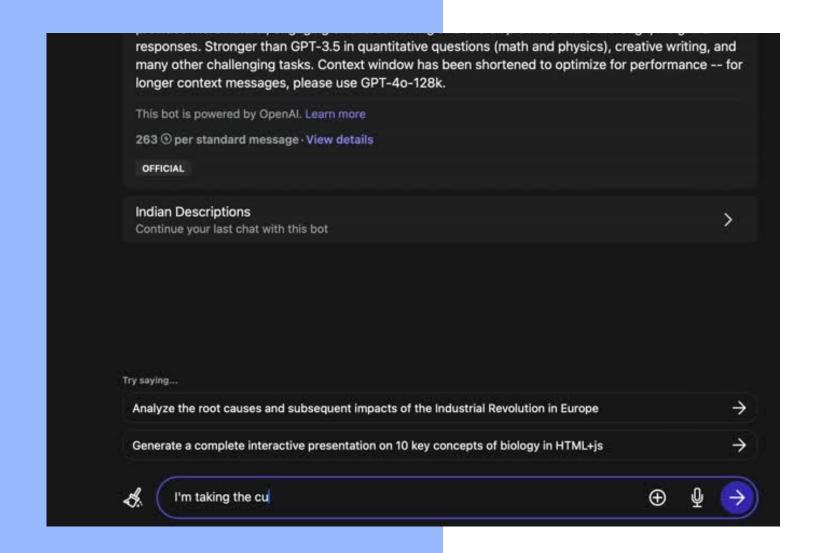
#### **Basic Concepts of Subnetting**

- 1. IP Address: An IP address consists of two parts: the network part and the host part. For example, in the IP address 192.168.1.1:
  - 192.168.1 identifies the network.
  - .1 identifies the specific device (host) on that network.
- 2. Subnet Mask: A subnet mask is used to determine which part of the IP address is the network and which part is the host. A common subnet mask is 255.255.255.0, which means the first three octets (192.168.1) are the network part, and the last octet is for hosts.
- 3. CIDR Notation: CIDR (Classless Inter-Domain Routing) notation is a shorthand for expressing IP addresses and their associated network masks. For example, 192.168.1.0/24 indicates that the first 24 bits are the network part.

#### **Subnetting Example**

Let's say we have the IP address 192.168.1.0/24 and we want to create 4 subnets.

1. Determine the Number of Subnets Needed: We want 4 subnets. The formula to determine how many subnets can be created is  $2^n$ , where n is the number of bits



# CREATING ANALOGIES AND SIMPLIFYING COMPLEX TOPICS

Note down your doubt topics

Most powerful tool for **understanding: analogies.** 

Explain it to me like a 5 year old

I'm taking the course Portfolio Management at HKU. I do not understand the topics of derivatives, options, and strategies like short-selling, derivative, leveraging etc. Break down these complex topics into simple terms, explain it to my like a five-year old.

#### Leverage, Short-Selling, and Derivatives

#### 1. Leverage:

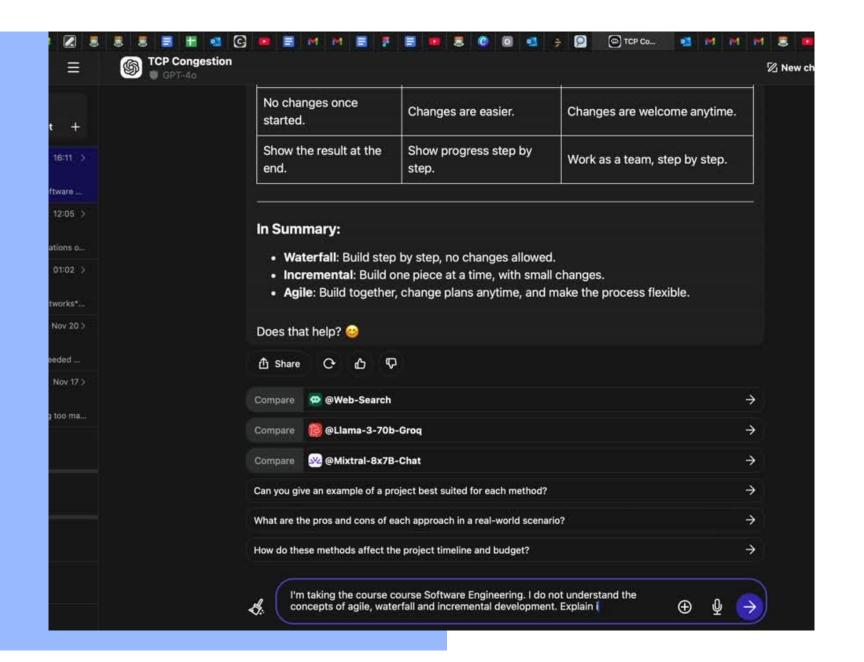
- Leverage is like borrowing money to buy more toys than you can afford.
- If you have \$10 and borrow another \$10, you can buy \$20 worth of toys. If the toys become more valuable, you can sell them and keep the profit. But if they lose value, you still have to pay back the \$10 you borrowed.

#### 2. Short-Selling:

- Short-selling is like betting that a toy will become less popular.
- Imagine you borrow a toy from a friend and sell it for \$10, thinking its price will drop. Later, when the price is \$5, you buy it back, return it to your friend, and keep the \$5 profit. If the price goes up instead, you can lose money.

#### 3. Derivatives:

- Derivatives are like making a bet on the future price of a toy without actually buying the toy.
- For example, if you think a certain toy will sell for more next month, you can make a deal with a friend to buy it at today's price later. If you're right, you profit; if you're wrong, you could lose the bet.



Useful if you've **huge amount of text to review** 

Excellent tool for summarizing key points

Important to **BE SPECIFIC**. Example:
Number of words, anything additional needed.





I'm taking a course and I'm reading this paper "Analysis on Transport Layer Protocols and Its Developments

International Journal of Innovative Research in Computer and Communication Engineering, 6(9), 7707-7712 by Ketulkumar Govindbhai Chaudhari Department of Information Technology, University of The Potomac". Summarise the main points of the paper in <500 words. Also list its limitations, final conclusions.

#### **Summary**

The paper discusses the evolution of transport layer protocols in response to the growing demands of modern communication technologies. It highlights the advancements in performance and the increasing availability of affordable data rates that have emerged in both fixed and mobile networks.

#### **Main Points:**

#### 1. Transport Layer Protocols:

- The primary focus is on TCP (Transmission Control Protocol) and UDP (User Datagram Protocol), which are foundational protocols for data transmission.
- The paper identifies the critical need for these protocols to evolve to keep pace with current network capabilities.

#### 2. Research Trends:

- The author outlines three significant research trends:
  - Congestion Control Algorithms: Innovations aimed at optimizing performance in challenging environments, potentially utilizing machine learning techniques.
  - New Transport Protocols: The introduction of alternative protocols to TCP, which are designed to operate in user space and address limitations of existing protocols.
  - Quality of Experience (QoE): Emphasis on enhancing user experience in data transmission, ensuring that applications function smoothly and efficiently.

#### 3. Challenges and Opportunities:

• The paper discusses the challenges faced by existing transport protocols,

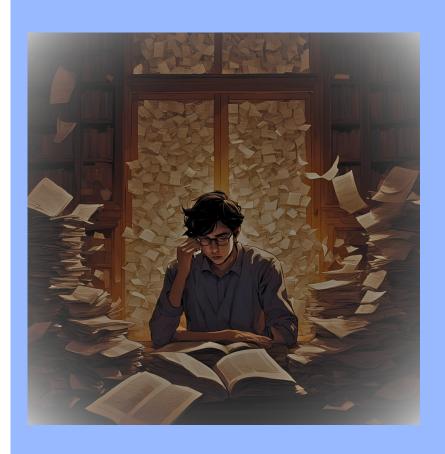
#### Limitations

- The paper does not provide extensive empirical data or case studies to support the proposed advancements.
- Some discussions on new protocols may lack detailed implementation strategies or performance evaluations.
- The focus on specific algorithms and protocols may overlook other significant factors influencing transport layer performance.

#### **Conclusions**

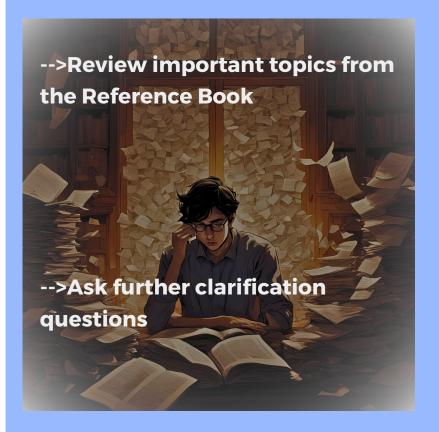
- The author concludes that continuous research and development in transport layer protocols are essential for adapting to the evolving landscape of internet technologies.
- There is a strong push for integrating machine learning and new methodologies to enhance congestion control and overall network performance.
- Future research should prioritize exploring hybrid solutions that combine the advantages of existing protocols while addressing their limitations.

This summary encapsulates the key points and findings of the paper, while also outlining its limitations and final conclusions. If you have specific sections or points you'd like to delve deeper into, feel free to ask!



-->Review important topics from the Reference Book

-->Ask further clarification questions



I've to study the book Computer Networks by Kurose and Ross for my Networks exam, found at <a href="https://classes.engr.oregonstate.edu/eecs/fall2022/cs372-001/textbook\_8th.pdf">https://classes.engr.oregonstate.edu/eecs/fall2022/cs372-001/textbook\_8th.pdf</a>.

Create a chapter-wise summary so I can read it and fully understand/grasp the ke concepts and information presented in the book.

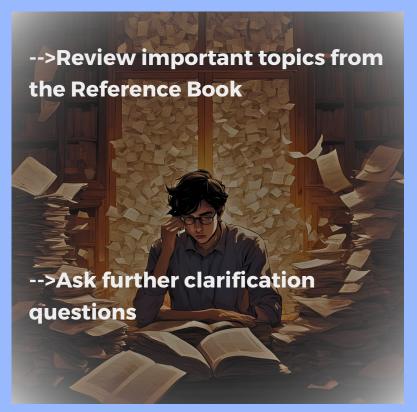
Assistant Poe ...

Sure! Here's a detailed chapter-wise summary of "Computer Networks" by Kurose ar Ross to help you understand the key concepts for your exam:

#### **Chapter 1: Introduction**

- Definition of Computer Networks: Networks are systems that connect computer share resources and information.
- Types of Networks:
  - LAN (Local Area Network): Covers a small geographical area, like a home or office.
  - WAN (Wide Area Network): Covers a larger area, such as cities or countries
- Applications of Networks: Examples include email, web browsing, and file sharing
- Network Architecture: Overview of layered architecture and protocols that gover communication.

#### **Chapter 2: Application Layer**



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Assistant Poe ···

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- Applications of Networks: Examples include email, web browsing, and file sharing
- Network Architecture: Overview of layered architecture and protocols that governormunication.

**Chapter 2: Application Layer** 

Ask follow-up questions

this does not explain still- the bullet points just list out the concepts/ideas. Create a learning text that is self-sufficient and contains all information that I can study from.

🗪 Assistant (Poe) ···

Certainly! Here's a more comprehensive chapter-by-chapter summary of **"Computer Networks" by Kurose and Ross**, written in a narrative format that explains the concepts in detail. This should provide a self-sufficient resource for your study.

**Chapter 1: Introduction** 



# ACTIVE RECALLING

It's important to practice questions after you learn a topic

creates reinforcing pathways in your brain

Ask GPT to summarise and generate practice questions/quizzes



Question has actually come regularly in the exam!

Let's go through each topic area:

- 1. Application Layer:
  - Key Concepts: HTTP, DNS, FTP, SMTP, POP3, IMAP
  - Numerical/Graph Questions:
    - Q1: What is the purpose of the HTTP header field "Content-Length"?
       Answer: The "Content-Length" header field in HTTP specifies the size of the message body in bytes. This is important for the receiver to know how much data to expect and allocate the necessary resources.
    - Q2: How does a DNS resolver determine the IP address for a given domain name?
      - Answer: The DNS resolver follows a hierarchical process of querying the root DNS servers, the top-level domain (TLD) servers, and the authoritative DNS servers to ultimately resolve the IP address for the requested domain name.
    - Q3. Sketch a diagram showing the sequence of events in an Sivir P email delivery process.

Question type has actually come regularly in the exam!



- Key Concepts: IP, Routing, Addressing, ICMP, NAT
- Numerical/Graph Questions:
  - Q6: Given a subnet mask of 255.255.255.0, what is the maximum number of hosts that can be accommodated in this subnet?
     Answer: With a subnet mask of 255.255.255.0, the network has 8 bits available for host addresses. The maximum number of hosts is 2^8 2 = 254, since the all-zeros and all-ones addresses are reserved.
  - Q7: Sketch a glagram showing the process of IP packet forwarding, including the role of the routing table and the default gateway.
  - Answer: The correct diagram would illustrate the steps involved in IP packet forwarding, starting with the source host, looking up the routing table, identifying the next-hop router, and forwarding the packet accordingly.

## **INFINITE ROLEPLAY**

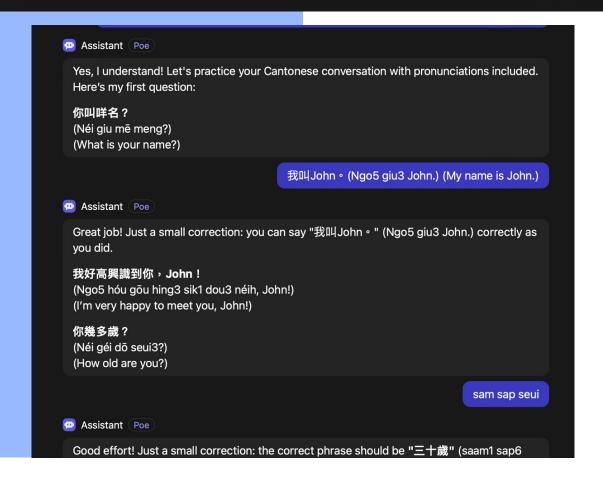
-->You can put GPT into any role to advise you.

-->It's important to give the format of the response that you want.





Imagine that you're an expert Cantonese tutor. I'm your new student and I'm taking the introductory Cantonese course at the university. I want to practice having conversations in Cantonese to improve my knowledge. You will have a basic conversation with me in the format of asking a simple question, wait for my response, correct my response (in English), reply and ask another question in Cantonese. Kindly include English pronunciations of the cantonese. Do you understand?



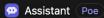
## **FLASHCARD QUESTIONS**

-->Create flashcards/questions for revision

-->You can then put them into tools like **Anki or Quizlet** to generate Flashcards.

Imagine that you are a student studying for a Computer Networks exam based on the Kurose and Ross Book <a href="https://classes.engr.oregonstate.edu/eecs/fall2022/cs372-001/textbook\_8th.pdf">https://classes.engr.oregonstate.edu/eecs/fall2022/cs372-001/textbook\_8th.pdf</a>.

Write me a list of flashcard questions and model answers that i can put in my flashcards to revise from these.

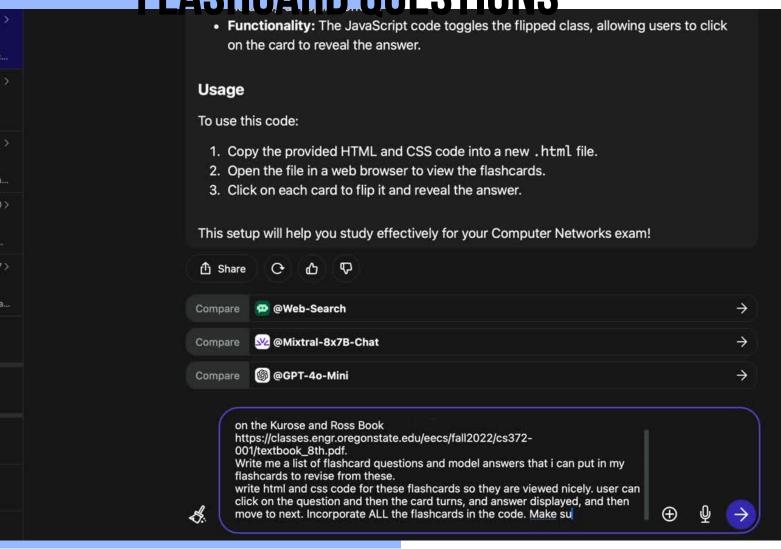


Here's a list of flashcard questions and model answers based on key concepts from "Computer Networks" by Kurose and Ross. You can use these for effective revision:

#### **Flashcard Questions and Answers**

- 1. Q: What is a computer network?
  - **A:** A system that connects computers to share resources and facilitate communication.
- 2. Q: What are the main types of networks?
  - **A:** LAN (Local Area Network), WAN (Wide Area Network), and MAN (Metropolitan Area Network).
- 3. Q: What is the purpose of the application layer?
  - **A:** It provides network services directly to the applications, allowing communication through protocols like HTTP, FTP, and SMTP.
- 4. Q: What is the difference between TCP and UDP?
  - **A:** TCP (Transmission Control Protocol) is connection-oriented and reliable, while UDP (User Datagram Protocol) is connectionless and faster but does not guarantee delivery.
- 5. Q: What is the role of the transport layer?
  - **A:** It ensures reliable data transfer between hosts, manages flow control, and handles error correction.
- 6. Q: Describe the function of the network layer.
  - A: It is responsible for packet forwarding and routing, determining the best path for

### **FLASHCARD OUESTIONS**



# TAILOR TO THE STYLE OF EXAM

-->MCQ/Essay-based Question/Diagram-based question

-->Practice specific type Questions by prompting GPT

topic: {Congestion Control in TCP}

Write 15 multiple choice questions with 1 correct answer and 4 incorrect distractor answers. Answers should be labelled A to E. Each correct answer should have an explanation.



Here are 15 multiple-choice questions related to **Congestion Control in TCP**, complete with explanations for the correct answers:

#### **Question 1:**

#### What is the main goal of congestion control in TCP?

- A) To encrypt data packets for security.
- B) To prevent packet loss due to network congestion.
- C) To increase the size of the data packets.
- D) To ensure packets arrive in the order they were sent.
- E) To establish connections between devices.

**Correct Answer:** B) To prevent packet loss due to network congestion.

**Explanation:** The primary goal of congestion control is to manage data transmission to prevent congestion, which can lead to packet loss and reduced network performance.

#### **Question 9:**

#### What is "Additive Increase/Multiplicative Decrease" (AIMD)?

- A) A method to encrypt data during transmission.
- B) A congestion control strategy used in TCP.
- C) A technique for compressing data packets.
- D) A protocol for establishing a network connection.
- E) A method for measuring network latency.

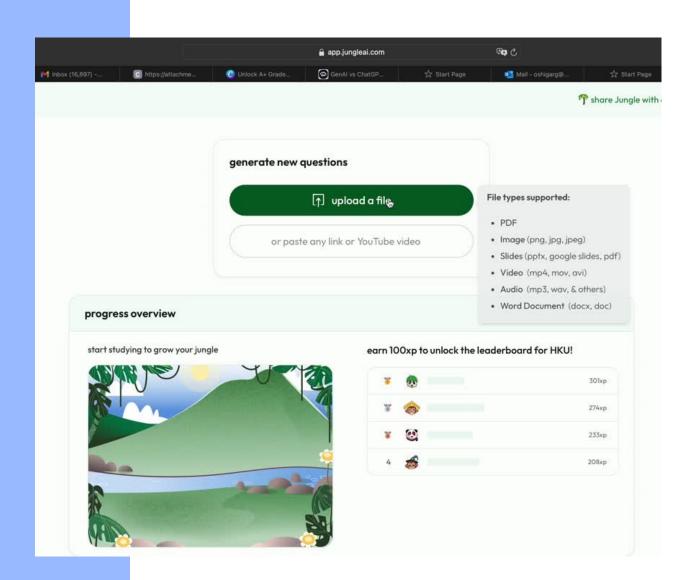
**Correct Answer:** B) A congestion control strategy used in TCP.

**Explanation:** AIMD is a strategy where TCP increases the congestion window additively (by one packet per round-trip time) during congestion avoidance and decreases it

# USAGE OF EXTERNAL GENAI TOOLS: JUNGLE

- -->Can upload lecture slides
- -->Prepares assessment
- -->MCQ/Written/Graph based Questions
- -->Can Chat with the Document

app.jungleai.com



# USAGE OF EXTERNAL GENAI TOOLS: JUNGLE

- -->Can upload lecture slides
- -->Prepares assessment
- -->MCQ/Written/Graph based Questions
- -->Can Chat with the Document

#### L2b - Software Processes v1\_2





. . .

A software development team is tasked with creating a new Enterprise Resource Planning (ERP) system for a mid-sized company. They plan to use existing components and off-the-shelf systems to accelerate the development process. The team starts by identifying initial requirements, searching for reusable software components, and considering how to integrate them into their solution.

What is the first step the development team should take in the reuse-oriented software engineering process?

Write your answer here...

Answer

Don't know

### **GRADE YOUR WORK**

-->Understanding strengths/ weaknesses of your writing/solutions is critical

-->Get your work graded, so you know where you stand.

--->Ask for improvements

Imagine you're an examiner. Tell me the strengths and weaknesses of the following essay and what grade it would get.

In today's interconnected world, computer networks form the backbone of modern communication, enabling the seamless exchange of information and resources across vast distances. From personal use to large-scale corporate operations, computer networks have revolutionized the way we live, work, and interact. This essay explores the concept of computer networks, their types, components, advantages, and challenges.

What Are Computer Networks?

A computer network is a system of interconnected devices that exchange data and share resources using communication protocols. These devices, often referred to as

#### **Grade Assessment**

Based on the strengths and weaknesses outlined, I would assign this essay a grade of **B+**. It demonstrates a solid understanding of the topic and is well-structured, but could be improved with more depth, specificity, and academic rigor. With revisions focusing on the areas of depth and supporting evidence, it could reach an A grade.

#### Strengths:

1. **Clear Structure**: The essay is well-organized, with distinct sections that guide the reader through the introduction, types, components, advantages, challenges, and conclusion of computer networks. This logical flow enhances readability.

### **USING GPT TO SCHEDULE**

Tasks you want to accomplish in the day

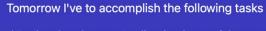
Revision timetable leading to the exam

Organize the week

Visualise time needed to have a mental make-up

# PLANNING YOUR DAY

- -->List out the tasks you have to do.
- -->Let **GPT tailor the schedule** you've to follow
- -->Import it into your Google Calendar



- 1) Revise the chapter Application layer of Computer Networks
- 2)Do my laundry, wash and dry clothes
- 3) Prepare for my interview at Cathay Pacific for the Software Engineering Role
- 4) Meet my friend and go for a walk
- 5)Meal prep for the next 3 days (I've onions, cucumber, tomato, eggs, bell peppers, couscous and cream cheese)
- 6) Make a presentation on how I use AI in my daily studying tasks.

Create an effective time-table that helps me finish ALL tasks and allocate optimal time to each activity and have sufficient time to sleep at night. I want to wake up around 9 AM.



Here's a structured timetable to help you accomplish all your tasks tomorrow while ensuring you get enough sleep. This schedule assumes you wake up at 9 AM and aims to balance productivity with breaks.

#### **Tomorrow's Timetable**

Time	Activity	Duration
9:00 AM	Wake up and morning routine (breakfast, hygiene)	1 hour
10:00	Povice the chapter on the Application Layer (Computer	

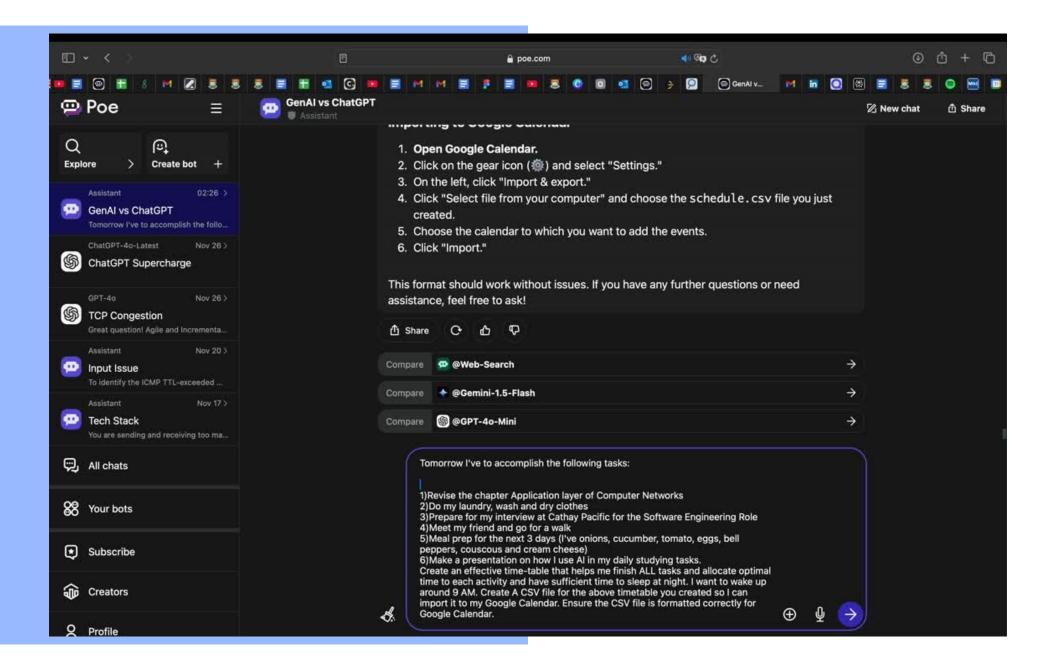
Create A CSV file for the above timetable you created so I can import it to my Google Calendar

Assistant Poe
Here's the CSV content that you can copy and save as a . csv file to import into your Google Calendar.

CSV Content

plaintext

Copy



# REVISION TIMETABLE LEADING TO THE EXAM

- -->Most effective analysis
- -->Allocation of optimal time for each topic and activity

Create a study timetable for an engineering student revising the courses Communication Networks, Software Engineering and applying for job applications in a day. Should get A+ grade. The exams are on Dec 13th and Dec 20th.

The timetable should cover a week.

The timetable should break this topic into individual learning topics. The timetable should include food breaks, exercise breaks and sleep Each day should be displayed in time blocks



Here's a study timetable for an engineering student preparing for exams in **Communication Networks** and **Software Engineering**, while also allocating time for job applications. This timetable spans one week leading up to the exams on December 13th and December 20th. It includes study topics, food breaks, exercise, and sleep.

#### **Weekly Study Timetable**

#### **Week Overview:**

- Exams: Communication Networks on Dec 13th, Software Engineering on Dec 20th
- Study Hours: 9 AM 10 PM (with breaks)
- Sleep: 11 PM 7 AM

#### Day 1: December 6 (Monday)

• 7:00 AM - 8:00 AM: Wake up and breakfast

# ORGANIZING THE WEEK

I've to make the coming week productive, while minimizing distractions and leaving appropriate time to rest and sleep.

I've to revise half of the topics of the courses Computer Networks, Software Engineering, meal-prep for the week, do my laundry, allocate one day to go hike and one evening to go out for a dinner with a friend, and I've to do grocery shopping. I want to buy eggs, broccoli, bell-pepper, tofu, onions, tomatoes, bread, kidney beans and chickpeas, cheese. I've to workout daily for an hour.

Create a day-to-day plan with time blocks, to help me accomplish the week. List out the tasks I've to do for meal prep and the recipes also I've to make that are not time-consuming using the ingredients I have.

Assistant Poe

Here's a structured day-to-day plan for your upcoming week that balances study, meal prep, errands, and leisure activities while minimizing distractions. The schedule includes designated times for workouts, study sessions, and personal tasks like grocery shopping and social outings.

#### **Weekly Plan Overview**

#### Day 3 (Wednesday)

- 9:00 AM 12:00 PM: Revise Computer Networks (Focus on Network Layer and Data Link Layer)
- 1:00 PM 5:00 PM: Prepare for group study (organize materials and create study quides)
- 6:00 PM 7:00 PM: Dinner
- 7:00 PM 10:00 PM: Free evening or relax.

#### Day 4 (Thursday)

- 9:00 AM 12:00 PM: Revise Software Engineering (Focus on Testing and Maintenance)
- 1:00 PM 5:00 PM: Hike (Get outdoors for exercise and relaxation)
- 6:00 PM 7:00 PM: Dinner
- 7:00 PM 10:00 PM: Wind down or review study materials.

#### **Simple Recipes**

- 1. Vegetable Stir-Fry:
  - Ingredients: Bell peppers, onions, tofu, broccoli.
  - Method: Sauté chopped vegetables and tofu in a pan with olive oil, garlic, and soy sauce for flavor.

#### 2. Chickpea and Kidney Bean Salad:

- Ingredients: Kidney beans, chickpeas, onion, tomato, bell pepper.
- **Method**: Mix all ingredients in a bowl, season with olive oil, lemon juice, salt, and pepper.

#### 3. Egg and Veggie Scramble:

- Ingredients: Eggs, onions, bell peppers, cheese.
- **Method**: Scramble eggs with sautéed onions and bell peppers; add cheese before serving.

# VISUALIZE TIME NEEDED TO HAVE A MENTAL MAKE-UP

-->Most effective analysis

-->Allocation of optimal time for each topic and activity

#### **Total Time Estimate**

• Computer Networks: 12 hours

• Al in Education Presentation: 10 hours

Grand Total: 22 hours

have the following study goals for my upcoming exams:

Master the key concepts of Computer Networks, specifically focusing on the Application Layer, Transport Layer, and Network Layer.

Prepare a presentation on the impact of AI in education.

Please help me estimate the time needed to achieve mastery in these topics, breaking it down into specific tasks and suggesting how long I should allocate for each task. Additionally, provide a visualization strategy so I can effectively track my progress

#### 2. Progress Tracker:

• Use a simple checklist or progress bar. For example, you can create a table where you check off tasks as you complete them. You might set it up like this:

Task	Estimated Time	Status
Application Layer Review	4 hours	[]
Transport Layer Review	4 hours	[]
Network Layer Review	4 hours	[]
Research AI in Education	3 hours	[]
Create Presentation Outline	1 hour	[]
Design Presentation Slides	3 hours	[]
Practice Presentation	3 hours	[]

#### 3. Time Blocking:

 Allocate specific blocks of time in your daily schedule for each task. For example, if you plan to study for 2 hours each day, you can divide those hours among the topics.

### **LIMITATIONS OF CHATGPT**



#### **Assumptions**

With timetables and schedules, it assumes a certain mental acumen, health etc.
You do YOU.

#### **Biases**

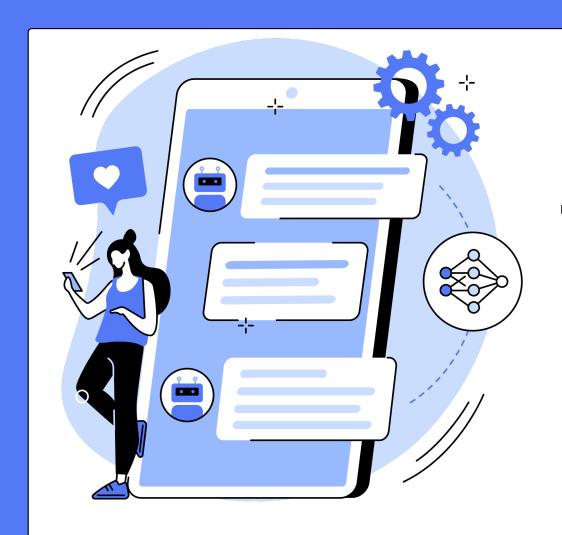
Several instances of triggering content/discrimination/ biases have been found in the content generated by GPT sometimes

### Lack of Sources

As university students, citing sources and evidenced-based thinking is important

# Inconsistency in responses

Contradictory or inconsistent as it does not have persistent memory or coherent worldview.



# THANK YOU FOR LISTENING!

Q/A