Ernst & Young FOUNDATION™

Handouts

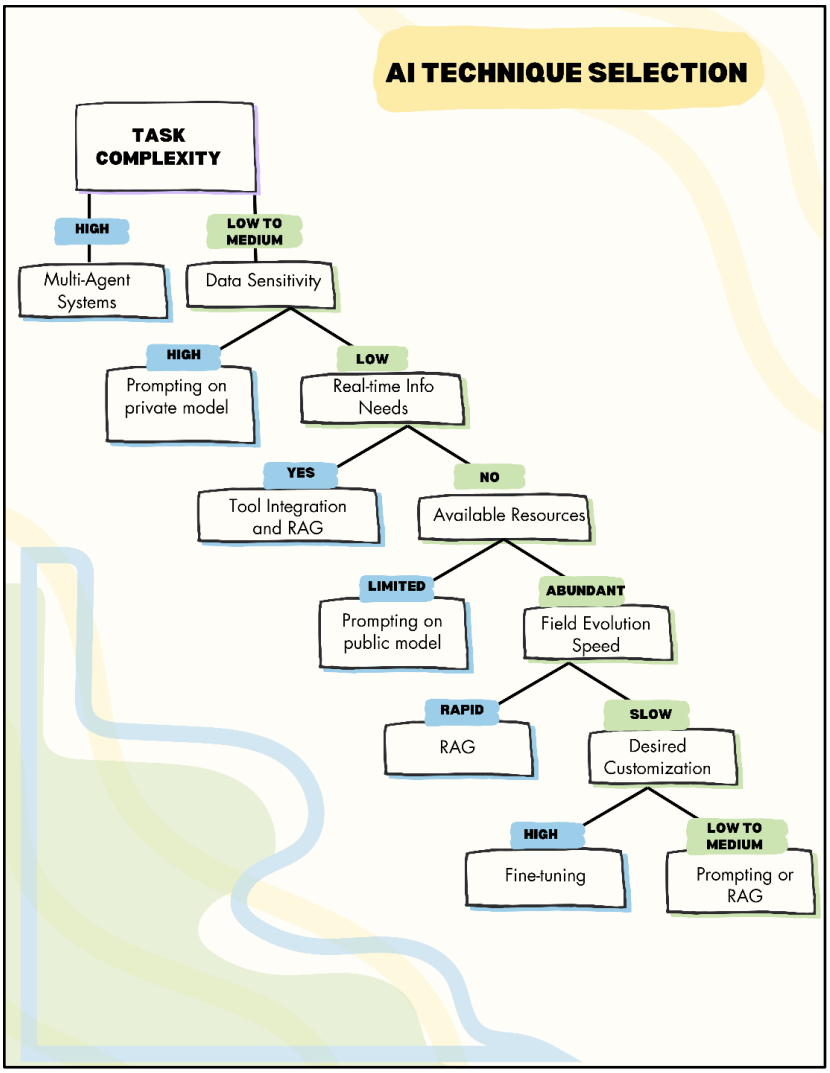
EYARC Experience

Advanced GenAI concepts – Handout

Assignment overview

This handout summarizes the main information from the EYARC Experience **Advanced GenAI concepts** assignment. It includes tables and a list of important vocabulary words.

Graphic 1 – Artificial intelligence (AI) technique selection



Vocabulary

- **Application Program Interfaces (APIs):** A set of rules and protocols that allows different software applications to communicate with each other. It defines the methods and data formats that applications can use to request and exchange information, enabling them to interact seamlessly.

SCORE no.

- **Attention:** A process that helps GenAI models determine which tokens matter most in the context by assigning learned weights that adjust each token's vector based on the surrounding words.
- **Continual learning:** AI feature where AI models learn and adapt over time without requiring complete retraining.
- **Deployment strategies:** Methods used to integrate AI models into real-world applications.
- **Dimension:** One of the many numerical values in a vector that captures a subtle aspect of a token's meaning based on how it's used in the context.
- **Embedding:** The process of mapping tokens to vectors during training. This allows the model to learn patterns and relationships between tokens.
- **Explainable AI (XAI):** AI that is designed to be more transparent, explaining its decision-making process for users to interpret.
- **Federated learning:** An AI training method where models learn from decentralized data sources without sharing raw data, preserving privacy and security.
- **Fine-tuning:** Adapting a pretrained AI model to perform well on a specialized task or within a specific domain.
- **Generative artificial intelligence (GenAI):** AI technology that generates new content such as text, images or music, rather than simply analyzing existing data.
- **Hallucination:** When a model generates information that sounds plausible but is false or unsupported by its input.
- **Multi-agent systems (MAS):** An AI deployment approach where multiple AI models (agents) with unique specializations collaborate to solve complex problems.
- **Neuro-symbolic AI:** A hybrid AI approach that combines pattern recognition from neural networks with logical reasoning to improve complex decision-making.
- **Overfitting:** When an AI model becomes too specialized and performs poorly on tasks outside its new area of focus.
- **Post-training techniques:** Methods to refine and specialize AI models for specific tasks or domains.
- **Predictive text:** A technology that suggests the next word or phrase as you type based on patterns learned from previously written language.
- **Pretraining techniques:** Methods to initially train an AI model on tasks and data sets.
- **Prompting: A** runtime technique that guides an AI model's behavior or output by providing specific instructions or context within the input text.
- **Reasoning models:** A class of AI models designed to engage in logical, multistep reasoning.
- **Retrieval-augmented generation (RAG):** A technique to enhance an AI model's output by combining its inherent knowledge with external information retrieved from databases or knowledge bases.
- **Runtime strategies:** Techniques employed to manage and optimize the execution of AI models after deployment.

- **Temperature:** A setting that controls how predictable or creative a GenAI model's output is; lower values make responses more focused and consistent, while higher values increase randomness and variety.
- **Token:** A small unit of text used by GenAI models to understand and generate language. Tokens may represent whole words, parts of words, punctuation or even spaces.
- **Tokenization:** The process of breaking input text into tokens so a GenAI model can interpret and respond to it. This step helps the model handle different languages, typos, and new or informal words.
- **Tool integration:** A deployment strategy that involves enabling AI models to interact with external tools, databases or APIs (Application Programming Interfaces).
- **Vector:** A numerical representation of text (such as words, sentences or entire documents) that enables AI systems to interpret, compare and transform data inputs.

[The following information applies to the questions displayed below.]

Carson Paint Company, which manufactures quality paint to sell at premium prices, uses a single production department. Production begins by blending the various chemicals that are added at the beginning of the process and ends by filling the paint cans. The gallon cans are then transferred to the shipping department for crating and shipment. Direct labor and overhead are added continuously throughout the process. Factory overhead is applied at the rate of $3 per direct labor dollar. The company combines direct labor and overhead in computing product cost.

Prior to May, when a change in the manufacturing process was implemented, Work-in-Process Inventories were insignificant. The changed manufacturing process, which has resulted in increased equipment capacity, allows increased production but also results in considerable amounts of Work-in-Process Inventory. Also, the company had 1,000 spoiled gallons in May—one-half of which was normal spoilage and the rest abnormal spoilage. The product is inspected at the end of the production process.

These data relate to actual production during the month of May:

	Costs
Work-in-Process Inventory, May 1	
Direct materials	$ 58,750
Direct labor	10,500
May costs added:	
Direct materials	346,050
Direct labor	46,295

	Units
Work-in-Process Inventory, May 1	
30% complete as to conversion activity	2,000
100% complete as to direct materials	
Sent to shipping department	24,500
Started in May	30,000
Work-in-Process Inventory, May 31	
80% complete as to conversion activity	6,500
100% complete as to direct materials	
Total spoilage (units), in May	?
% Spoilage considered normal	50%
Stage of processing when spoilage is detected	100%

rev: 05_22_2023_QC_HETS-2626

1. Award: 0.00 points

Required

1. Prepare a production cost report for May using the weighted-average method.

Carson Paint Company						
Production Cost Report - May						
	Production Information					
	Physical Units		**Direct Materials**		**Conversion**	
	Quantity Recap: Physical Units					
Input:						
Beginning WIP	2,000		100	%	30	%
Units started or Transferred-in						
Total units to account for	2,000					
Output:						
Units finished or Transferred-out				%		%
Normal spoilage				%		%
Abnormal spoilage				%		%
Ending WIP				%		%
Total units accounted for	0					
Equivalent Units: Weighted-Average						
Materials						
Conversion						
Cost Added						
	Direct Materials		**Conversion**		**Total**	
Beginning WIP					$ 0	
Current costs					0	
Total	$ 0		$ 0		$ 0	
Divide by equivalent units						
Weighted-Average Cost per Equivalent Units					$ 0.00	
Cost Summary: Weighted-Average Method						
Finished goods						
Good production		units				
Normal spoilage		units			$ 0	
Abnormal spoilage		units				
Ending WIP		units				
Direct materials						
Conversion					$ 0	
Total cost accounted for					$ 0	

References

Worksheet	Learning Objective: 06-02 Explain and calculate equivalent units.	Learning Objective: 06-04 Demonstrate the weighted-average method of process costing.
Difficulty: 2 Medium	Learning Objective: 06-03 Describe the five steps in process costing.	Learning Objective: 06-09 Account for spoilage in process costing (appendix).

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EYARC Experience

Building agentic workflows - Handout

Assignment overview

The following handout summarizes the main information from the EYARC Experience Building agentic workflows assignment. This includes an infographic and a list of important vocabulary words.

Score No.

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Vocabulary

- **Chain prompting:** A technique where an AI is guided through a series of connected prompts, with each step building on the previous response to produce a more accurate or complete answer.
- **Agent:** A software program that acts autonomously to perform tasks, make decisions, or interact with its environment.
- **Multi-agent systems:** A collection of agents that work together, either collaboratively or competitively, to achieve goals that may be too complex for a single agent to handle.
- **Agentic lite:** A simplified form of agentic automation where AI makes limited, guided decisions within a structured workflow

Score No.

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EYARC Experience

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Score No.

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EYARC Experience

Prompt engineering 2 – Handout

Assignment overview

The following handout summarizes the main information from the EYARC Prompt engineering 2 assignment. This includes tables and a list of important vocabulary words.

Table 1: Prompting techniques from the EYARC Prompt engineering 1 assignment

Concept	Description
Zero-shot prompting	Asks the model to generate a response without providing any examples or context, relying solely on its general knowledge.
Few-shot prompting	Includes instructions along with specific examples (or shots) that help the model understand the context and generate more accurate, relevant responses.
Chain-of-thought prompting	Encourages generative AI (GenAI) models to solve problems by outlining their reasoning steps in a step-by-step manner, rather than jumping directly to the final answer. Chain-of-thought prompting is often combined with zero-shot prompting or few-shot prompting.
Multistep prompting	Guides GenAI models through a series of individual prompts, each addressing a specific aspect of the overall task. Prompts are typically given one at a time after each response.
Constrained prompting	Sets specific parameters or limitations within which GenAI must operate.
Recursive prompting	Uses the output from one prompt as the input for another, refining and building on GenAI's output iteratively.
Adversarial prompting	Challenges GenAI's responses by intentionally giving counterarguments or conflicting information to test the robustness of its outputs.
Role prompting	Instructs the model to take on a specific role or persona when generating responses.

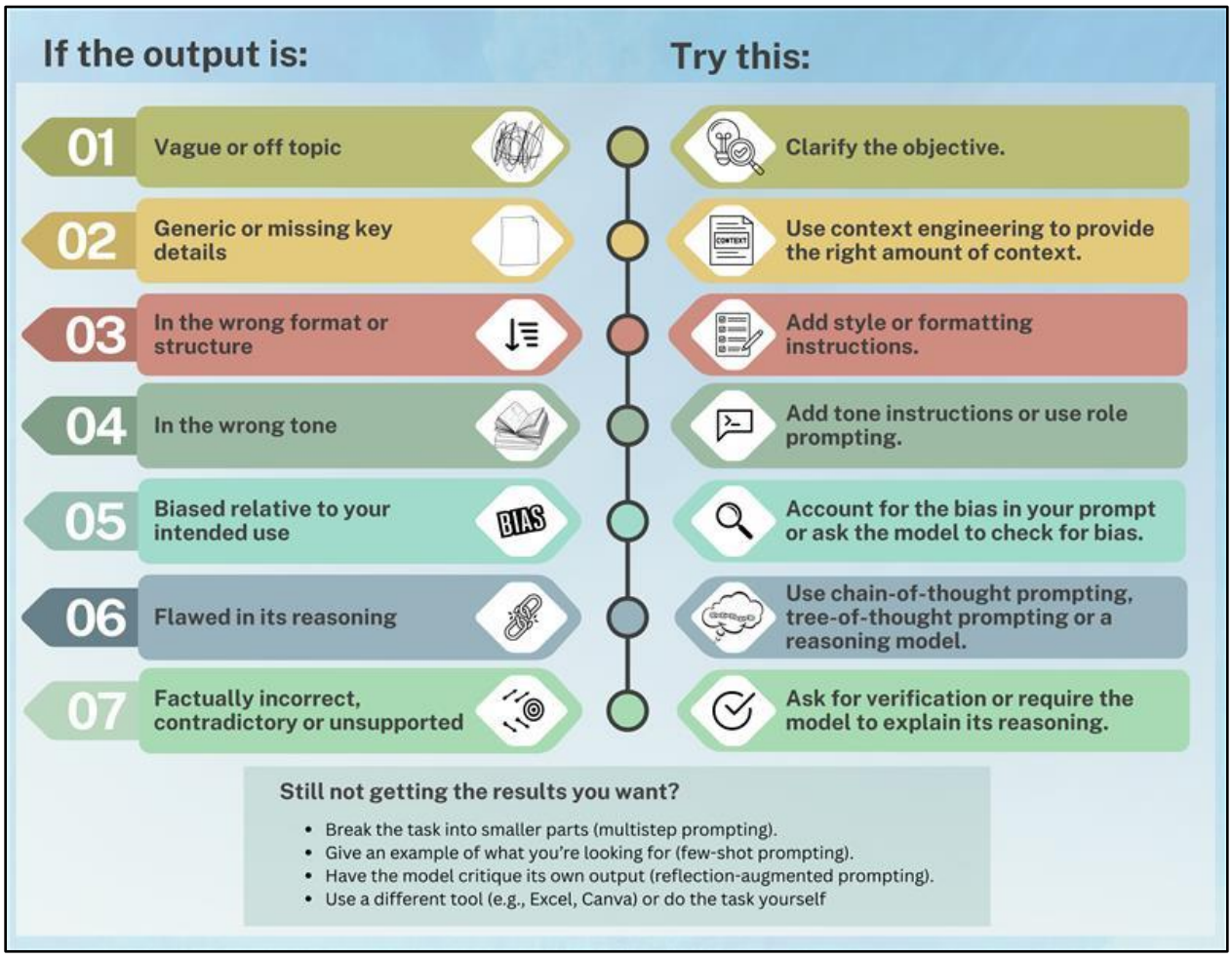
Score No.

Table 2: Advanced prompting techniques, system prompts and prompting reasoning models

Concept	Description
Reflection-augmented prompting	A technique where GenAI critiques and revises its own initial response to produce a more thoughtful, refined final output. It works by guiding the model through cycles of self-evaluation and improvement, leading to clearer and more reliable results.
Tree-of-thought prompting	A technique that guides GenAI to explore multiple ideas at each step of a task, compare them and choose the strongest path forward, leading to more balanced and well-considered results. Tree-of-thought prompting builds on chain-of-thought prompting but takes it further.
System prompt	A system prompt is a set of behind-the-scenes instructions that shapes a GenAI model's role, tone and boundaries in every response. Effective system prompts use role prompting and clear constraints to guide how the model should behave and what it should or shouldn't do.
Prompting for reasoning models	Reasoning models are a type of GenAI designed to handle complex thinking tasks without needing step-by-step instructions. To prompt them effectively, give a clear goal, relevant context and a structured output format to guide the response.

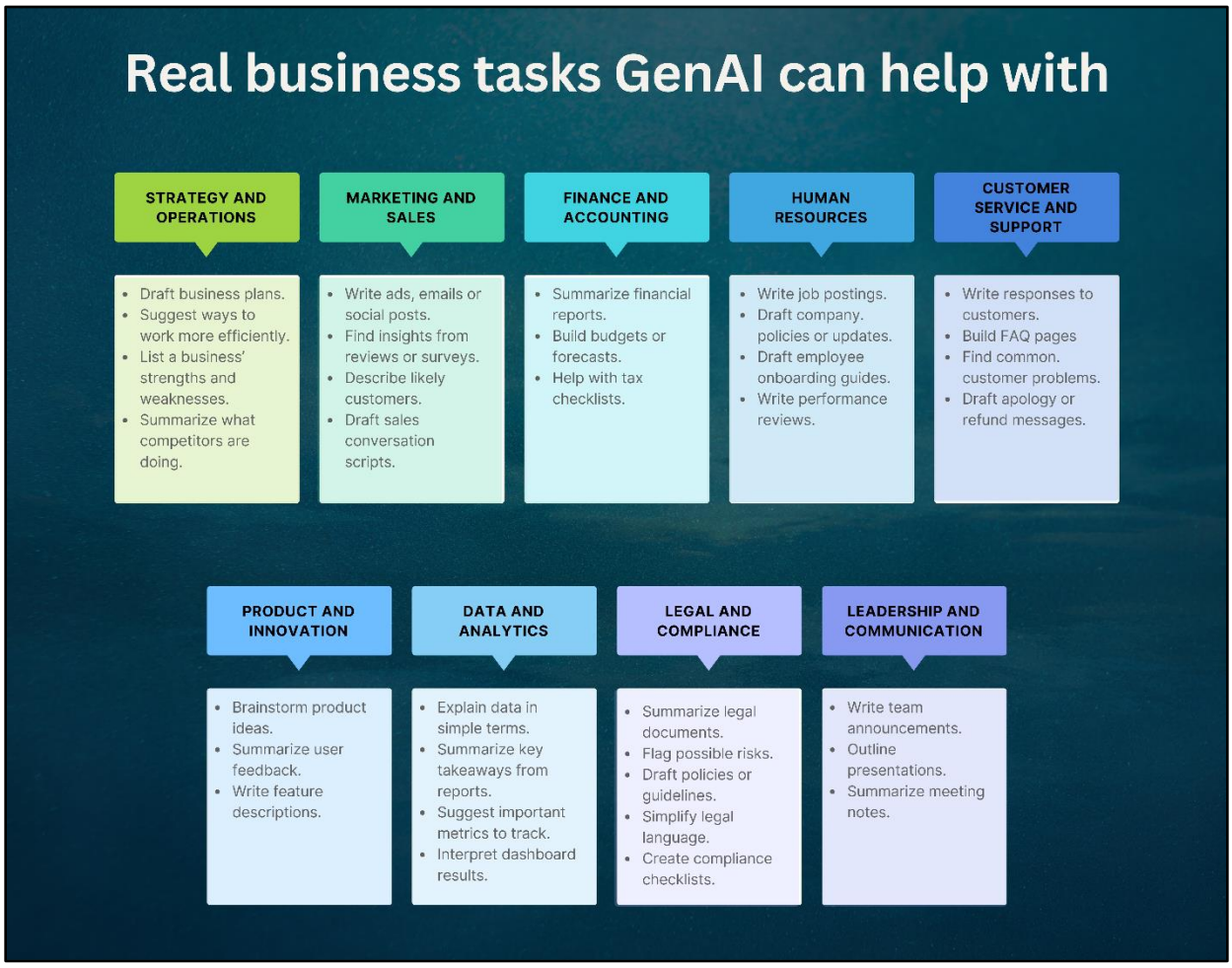
Score No.

Image 1: Prompt debugging



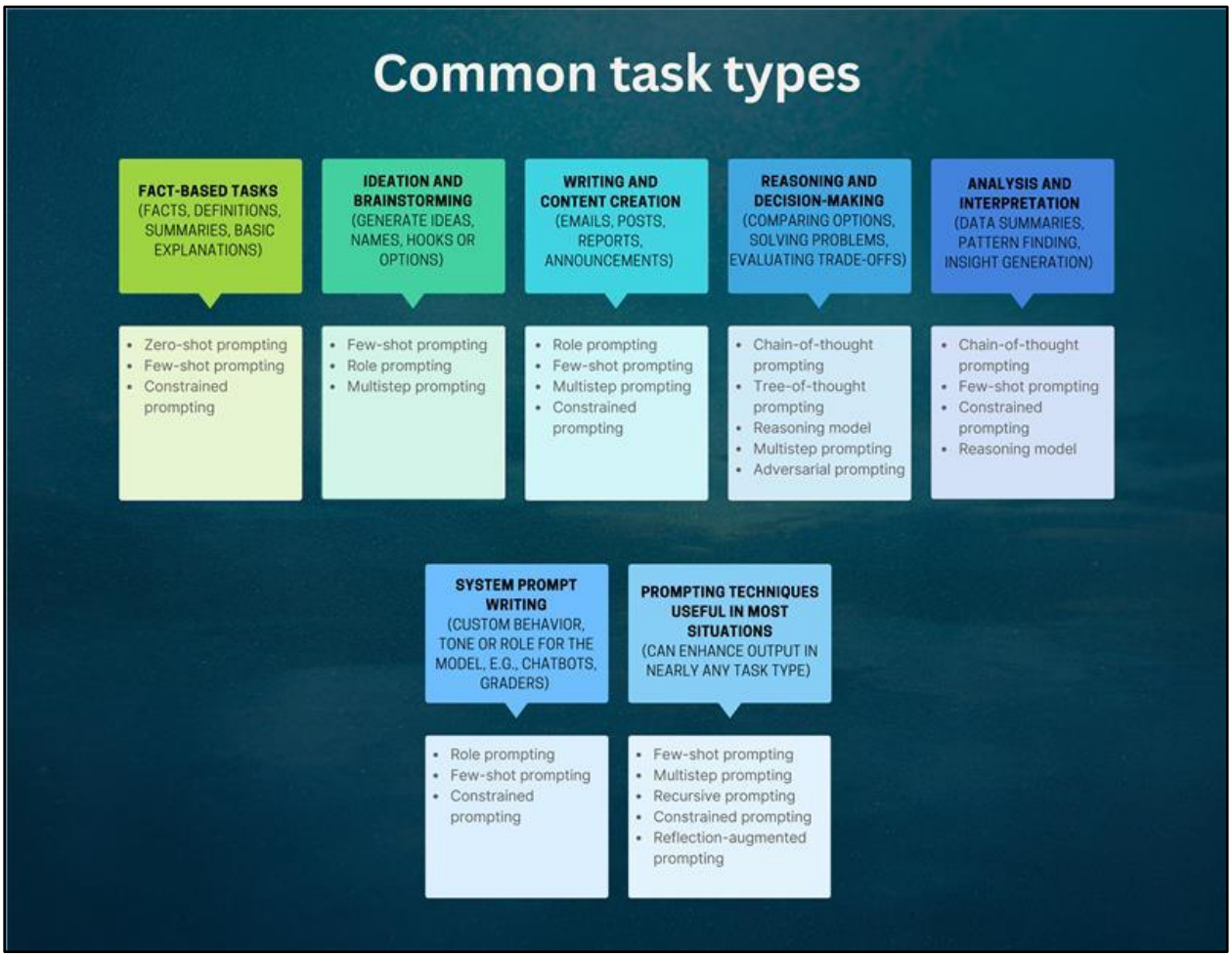
Score No.

Image 2: Real business tasks GenAI can help with



Score No.

Image 3: common task types



Vocabulary

- **Generative AI (GenAI):** AI technology that generates new content such as text, images or music rather than simply analyzing existing data.
- **Prompt engineering:** The process of designing, testing and refining prompts to generate specific and accurate responses from language models.
- **Hallucination:** When a model generates information that sounds plausible but is false or unsupported by its input.
- **Context engineering:** The practice of providing GenAI with the right amount of relevant information so it can generate accurate and goal-aligned responses.
- **Statistical bias:** Refers to a systematic error in data collection, sampling or analysis that causes results to consistently deviate from the true value or fail to represent the target population accurately.

Score No.

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EYARC Experience

Prompt engineering - Handout

Assignment overview

The following handout summarizes the main information from the EYARC Prompt engineering assignment. This includes tables and a list of important vocabulary words.

Table 1: Prompting techniques

Name	Definition
Zero-shot prompting	Asks the model to generate a response without providing any examples or context, relying solely on its general knowledge
Few-shot prompting	Includes instructions along with specific examples that help the model understand the context and generate more accurate, relevant responses
Chain-of-thought prompting	Encourages GenAI models to solve problems by outlining their reasoning steps in a step-by-step manner, rather than jumping directly to the final answer. Chain-of-thought prompting is often combined with zero-shot prompting or few-shot prompting
Multi-step prompting	Guides GenAI models through a series of individual prompts, each addressing a specific aspect of the overall task. Prompts are typically given one at a time after each response
Constrained prompting	Sets specific parameters or limitations within which GenAI must operate
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Role prompting	Instructs the model to take on a specific role or persona when generating responses

Score No.

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Vocabulary

- **Generative AI (GenAI):** AI technology that generates new content such as text, images, or music, rather than simply analyzing existing data.
- **Prompt engineering:** The process of designing, testing and refining prompts to generate specific and accurate responses from language models.
- **Deepfake:** AI-generated media such as audio, video, or images that mimic real people's voices or appearances, often raising ethical and legal concerns due to the potential for impersonation.

Score No.

Exit Assignment

0 of 2 Concepts completed

Fill in the Blank Question

Annette is currently in the 24% marginal tax bracket. She had a long-term capital gain from the sale of stock and another capital gain from a coin collection. Assuming that the combined gains are not large enough to push her into a higher marginal bracket, she will be taxed _____ % on the gain from the sale of stock and _____ % on the gain from the coin collection.

Need help? Review these concept resources.

Read About the Concept

Rate your confidence to submit your answer. High Medium Low Reading

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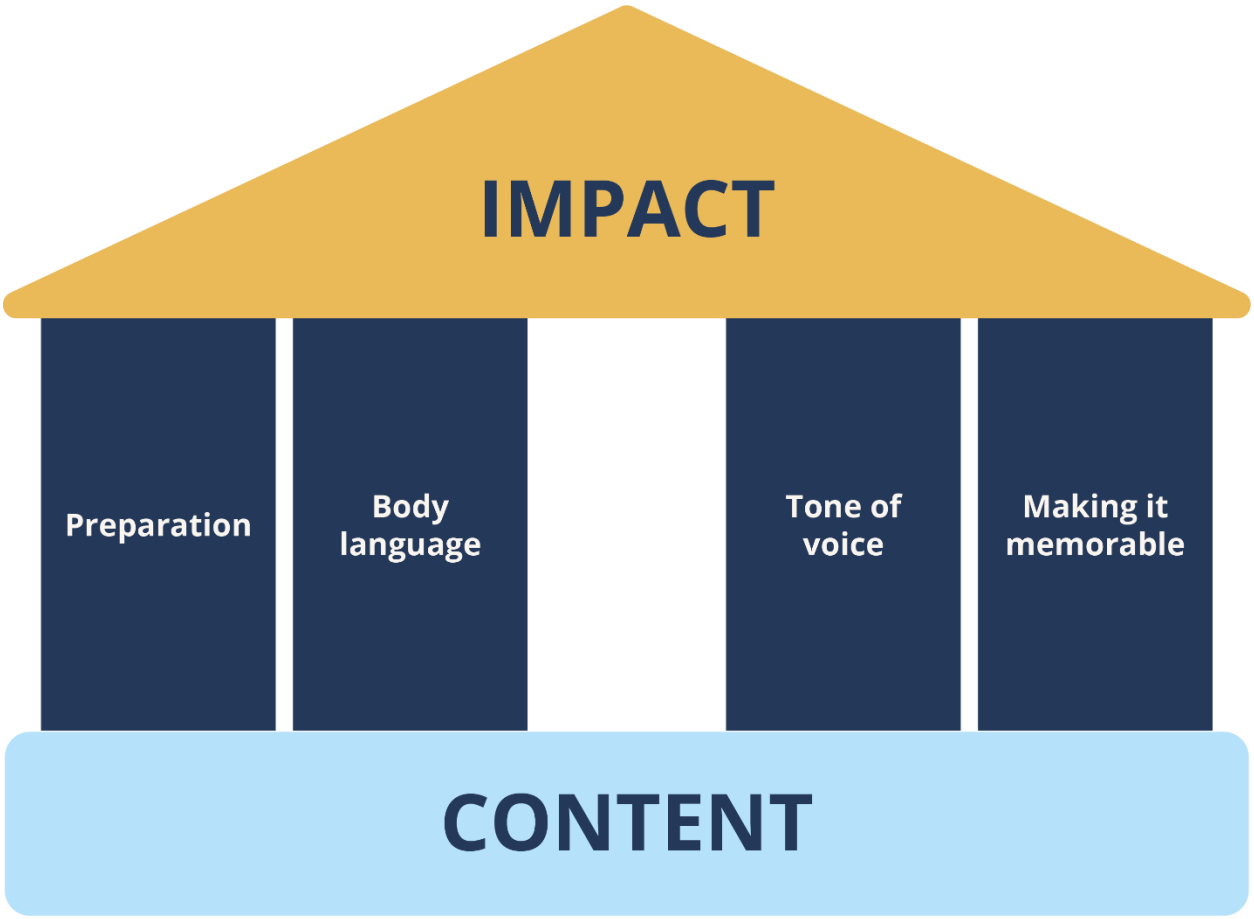
EYARC Experience

Soft skills: Giving effective presentations – Handout

Assignment overview

The following handout summarizes the main information from the EYARC Soft skills: Giving effective presentations assignment. This includes tables and a list of important vocabulary words.

From foundation to roof: how to present with impact



Score No. 28759-251US_2

Table 1: Four pillars for effective presentations

Pillar	Leading practices	What not to do
Preparation	Format your ideas thoughtfully using page numbers, large fonts, wide margins, double spacing, and bullet points to quickly reference your material. Remember to take regular pauses to give your audience time to process what you are saying.	Write out a full script and read it word for word. Use a phone or small pieces of paper for notes. They are hard to reference. Use casual slang or unexplained acronyms.
Body language	Use eye contact, posture, and gestures to reinforce your message and connect with your audience.	Keep your hands in your pockets, cling to the podium or sway back and forth. Use closed facial expressions. Cross your arms, wave your arms wildly or pace repeatedly back and forth.
Tone of voice	Vary pitch, pace, and volume to keep listeners' attention and match the meaning of your message.	Speak in a monotone voice. Rush through your presentation. Use filler words like um, like, so, or basically.
Making it memorable	Focus on a few key ideas. Use repetition of those key ideas so the audience remembers your message. Connect emotionally with your audience through stories and personal anecdotes. Give your audience a clear invitation or next step.	Overload your presentation with too many points.

Vocabulary

- **Open face:** Using lifted eyebrows to signal interest and friendliness to your audience.
- **Closed face:** Lowering your eyebrows or tightening your expression in a way that makes you appear unapproachable or disinterested.
- **Neutral face:** Keeping an expressionless look that does not communicate interest or emotion to the audience.
- **Presentation box:** The space between your shoulders and hips where gestures should stay to appear natural and controlled.

Score No. 28759-251US_2

- **The feel:** Lifting your hands to your heart to signal an emotional emphasis.
- **The give:** Extending your hands outward with open palms to signal inviting, openness, or sharing ideas with your audience.
- **The chop:** Using your hands in precise slicing motions to underscore important points.

Score No. 28759-251US_2

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EYARC Experience

Vibe coding – Handout

Assignment overview

This handout summarizes information from the EYARC Experience Vibe coding assignment.

If you are using free large language model (LLM) accounts for this assignment, be cautious with the amount of prompts you use. The assignment is designed to work with free accounts, but if you exceed the usage limits, you'll need to wait before using the tool again. To make the most of your access, avoid using unnecessary or off-topic prompts that may quickly consume your daily quota.

Table 1: Summary of benefits, limitations and concerns of vibe coding

AI code generation: benefits, limitations and concerns

Benefits	Limitations	Concerns
• Generates code quickly • No coding experience required • Focuses on creativity, not syntax • Reduces common human errors	• Only writes code, not full projects • Minor requests can cause big differences • Struggles with edge cases when debugging	• Possible security vulnerabilities • May be hard to understand or maintain the code • Can lead to skipping core programming skills

Vocabulary

- **Canvas:** Like a digital sketch pad, Canvas is an HTML5 element that provides a space in the browser for users to draw graphics using JavaScript.
- **Code editor:** This tool is used to write and edit computer code. It's like a text editor (Microsoft Word or Google Docs) but built for programming. It can highlight code, spot errors, and sometimes suggest what you might want to type next.
- **Encrypting**: Encryption is a way of scrambling information so that it can only be read by someone with the right key or credentials.
- **HTML:** HTML stands for Hypertext Markup Language. This is the basic code for webpages. It uses words inside brackets to label parts of a page, such as titles, paragraphs, or images, so the browser knows how to show them.
- **HTML editor:** This is a code editor meant specifically for HTML code.
- **HTML5 element:** This is a tag that tells a web browser what to show or do on a webpage.
- **Multimodal:** Multimodal systems can process and work with multiple types of input or output formats. "Multi" means many and "modal" refers to forms. In the context of AI, a multimodal AI can handle different types of data like text, images, audio, and video.

Score No. 28795-251US_2

- **p5.js:** This is a JavaScript library designed for creative coding. This library makes it easier for artists, designers and educators to create interactive and generative art in browsers.
- **React code**: This is A type of JavaScript code used to build websites that update quickly and feel smooth to use. It lets developers create reusable pieces of code for things like buttons, menus, or forms. React code allows developers to build pages faster and keep things organized more efficiently.
- **Syntax:** Syntax is the specific structure required in coding for the computer to understand commands.
- **Spill formula:** A spill formula automatically fills multiple cells with results from just one formula; the values “spill” out into nearby cells.
- **Tab coding**: This is a way to write code with GenAI directly inside a code editor, where the AI suggests code as you type. Tab coding works like auto-complete. You can press the TAB key to accept a suggestion or keep typing to ignore it.
- **JavaScript:** JavaScript is a programming language that makes websites interactive — like responding to button clicks, showing animations, or updating content without reloading the page.

Score No. 28795-251US_2