Workshop: Gen_AI

Topic: Use of GenAI

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Assignment 01: Smart use of AI tools as an ICT pro

1. List of known AI tools
    - ChatGPT, Copilot, DeepSeek, Gemeni, Claude, Galaxy AI, Notion AI, Llama AI, Perplexity Ai, MidJourney, Figma AI, Cursor, and more.
2. Benefits
    - Some of the benefits using AI are:
        - Writing and debugging code more efficiently.
        - Writing faster unit tests.
        - Lowering learning curves.
        - Automation for repetitive tasks.
        - Training models for predicting data.
3. Unknown AI tool
    - SuperAGI: Modern AI platform designed for optimizing marketing, business and development workflow. It automates repetitive tasks, provides personalized interactions, accelerates app development with AI-enhanced coding and version control.
4. Reflection
    - Personally, I would make use of these AI tools as much as I could to optimize my workflow. Particularly I would use Notion AI for generating custom templates for enhancing productivity, for instance: time management, notes templates, assignment tracker, study planner and more. I would use Claude or DeepSeek to improve code practises, write better and faster tests and come up with idea improvements, MidJourney or alternatives to generate graphic content and Figma AI for faster prototyping.

Assignment 02: Classical AI vs. Generative AI

1. Classical AI
    - **Structured Data:** It needs structured data (tables, databases clearly defined and organized) and labelled datasets in order to function effectively.
    - **Manual selection:** Involving manual selection of features in the datasets, concerning models and includes doing repetitive testing and evaluation to ensure model's efficiency.
    - **Tasks:** Perfect for tasks with clear parameters.
    - **Data preparation:** Needs extensive data cleaning and preparation before analysis.
2. Generative AI
    - **Human-like Text Processing:** Uses vast amounts of data to understand the context and generate human-like content.
    - **Unstructured Data:** Can make deep analysis and recognize subtle patterns.
    - **Versatility:** Could perform multiple tasks, adapting to different scenarios.
    - **Less data preparation:** Requires relatively less data preparation in comparison to classical AI.
3. Use cases
    - **Classical AI:** It's great for tasks that require precision and consistency.
        - **Expert systems**: Diagnosing diseases, troubleshooting technical issues
        - **Fraud detection**: Using rule-based systems to flag suspicious transactions
        - **Recommendation engines**: Based on user behavior and predefined logic
        - **Robotics**: Industrial robots performing repetitive tasks
        - **Search algorithms**: Finding optimal paths or solutions in logistics and planning
        - **Predictive maintenance**: Monitoring equipment and predicting failures using sensor data

- **Generative AI:** Uses machine learning models (especially deep learning) to create new content—text, images, music, code, and more.
    - **Content creation**: Writing articles, generating marketing copies, composing music
    - **Image generation**: Creating artwork, product mockups, or visual concepts
    - **Chatbots and virtual assistants**: Providing conversational support and personalized responses
    - **Code generation**: Assisting developers by writing or debugging code
    - **Education**: Personalized tutoring, quiz generation, and study guides

Classical AI vs Generative AI

Feature	Classical AI	Generative AI
Approach	Rule-based, logic-driven	Data-driven, model-based
Core Technology	Decision trees, expert systems, symbolic logic	Neural networks, deep learning
Data Requirements	Structured data	Large volumes of unstructured data (text, images)
Output Type	Deterministic (predictable)	Creative and probabilistic (varied)
Use Cases	Fraud detection, automation, diagnostics	Text/image generation, chatbots, design tools
Human-like Creativity	Limited	High—can mimic human writing, art, and speech
Adaptability	Low—needs manual updates	High—learns and adapts from new data

Assignment 03: Prompt Engineering in ICT Practice

1. Best practices

- **Clear and Specific Instructions**
  - Being explicit in your prompts - stating the task, desired output, and constraints—helps AI models deliver precise and relevant responses.
  - Why it matters for ICT: ICT professionals often rely on AI for technical tasks like troubleshooting, documentation, or code generation. Clear instructions reduce ambiguity and improve the accuracy of automated outputs, minimizing errors in mission-critical systems.
- **Contextual Information**
  - Supplying relevant background (e.g., user role, purpose, or data source) helps the AI tailor its response to the situation.
  - Why it matters for ICT: Context is crucial in ICT environments where systems vary widely. Whether configuring networks or analyzing logs, giving context ensures AI understands the scope and delivers responses aligned with the specific infrastructure or user needs.
- **Output Format**
  - Defining how you want the answer structured - like using lists, tables, or templates-makes AI outputs more usable and consistent.
  - Why it matters for ICT: Structured outputs are essential for integration into reports, dashboards, or scripts. This practice streamlines workflows and ensures that AI-generated content can be directly applied without manual reformatting.

2. AI roles

- **Roles:** Code reviewer, experienced developer, personal tutor.

3. Prompting

Prompt 1

You are a code reviewer. Check this Python function for errors and inefficiencies. Explain your feedback for a beginner programmer. Give feedback in bullet points.

Prompt 2

You are a cybersecurity analyst. Evaluate this network configuration for potential vulnerabilities. Explain your findings for an IT student learning security basics. Present your analysis in bullet points.

Prompt 3

You are a technical writer. Review this API documentation for clarity and completeness. Assume the reader is a junior developer unfamiliar with the API. List your suggestions in bullet points.

Prompt 4

You are a DevOps engineer. Analyse this CI/CD pipeline script for optimization opportunities. Explain your insights for someone new to DevOps. Provide your recommendations in bullet points.

Prompt 5

You are a UX designer. Assess this user interface layout for usability issues. Explain your critique for a beginner front-end developer. Summarize your feedback in bullet points.

4. Reflection

The most effective prompt was the code review for a beginner programmer because it combined a clear role, a focused task, and a well-defined audience, resulting in precise and educational feedback. Its success came from aligning with prompt engineering best practices—clarity, context, and structured output—which helped the AI deliver actionable insights. This shows how thoughtful prompt design can enhance the usefulness of AI in ICT tasks.

References

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