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| ASSIGNMENT COVER SHEET | **ANU College of Engineering, Computing and Cybernetics** Australian National University Canberra ACT 0200 Australia **www.anu.edu.au** |
| Submission and assessment is anonymous where appropriate and possible. Please do not write your name on this coversheet. |

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| Student IDs  For group assignments, list *each* student’s ID | 1. e.g. Name, student ID 2. e.g. Name, student ID 3. e.g. Name, student ID 4. e.g. Name, student ID | | |
| Group Number | XX | | |
| Is this group from Undergrad (3900) or Postgrad (6390) students? | E.g. Postgrad | | |
| Course Code | COMP3900/6390 | | |
| Course Name | Human-Computer Interaction | | |
| Assignment Number | Assignment 1 – Scenarios | | |
| Assignment Topic | Scenario-Based design – Exploring future technology scenarios | | |
| Lecturer | Dr Josh Andres | | |
| Tutor | NA | | |
| Tutorial (day and time) | NA | | |
| Word count | NA | Due Date | 9 August 6pm |
| Date Submitted | Enter date | Extension Granted | NA |

I declare that this work:

upholds the principles of academic integrity, as defined in the University [Academic Misconduct Rules](http://www.anu.edu.au/about/governance/legislation);

is original, except where collaboration (for example group work) has been authorised in writing by the course convener in the course outline and/or Wattle site;

is produced for the purposes of this assessment task and has not been submitted for assessment in any other context, except where authorised in writing by the course convener;

gives appropriate acknowledgement of the ideas, scholarship and intellectual property of others insofar as these have been used;

in no part involves copying, cheating, collusion, fabrication, plagiarism or recycling.

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| Only one cover sheet is needed per group - and all members (who participated in the assignment) need to sign it (using their initial is fine) | E.g., AM, JA, PK, KL (These are example initials of your team members) |

Assignment 1:

Scenario-based design

**The key idea explored in this assignment is…**

You are invited to imaginatively inhabit and explore the possible futures that might emerge from humans combining generative AI capabilities into everyday technologies at massive scale.  
Examples include novel models like ChatGPT which can see, hear, and converse, providing follow-up questions, redirecting discussions, connecting related concepts, changing arguments and topics, and assuming different roles and situations. As capabilities like these are combined with everyday technologies, including personal devices, home appliances, robots, classrooms, homes, vehicles, and entertainment technologies, and they propagate across society, they can influence our perceptions of certain topics and shape creative exploration and critical thinking. It is vital today to recognize these evolving dynamics to explore their future through design.

*How would this new interaction paradigm transform relationships between humans, their technologies, society, and the environment?*

**1. Prepare**

**In this section, you will dive into the themes and the scenario-based ingredients to start your scenario.**

In your groups, start by thinking of a technology you have studied or frequently use. Then, read below 1.1 Themes and 1.2 Ingredients, and select one or more *Themes* and use the *Ingredients* to start crafting a scenario.

The ingredient “Relationship dynamics” is a compulsory ingredient to use in your scenario.

1.1 Scenario Themes

**Theme one: Evolving relations between people and AI** - the profound impact of generative AI capabilities presents the potential to redefine relations between humans, machines and the environment. Given the rapid addition of these capabilities into everyday life, it is timely to explore the role of design in creating possibilities to explore these relations.

* *What explicit or implicit roles should generative AI-enabled technologies play to contribute positively to the human-technology relationship?*
* *How can we design for reciprocal influence between humans and machines to foster human growth and technological advancements without leading to over-dependency?*
* *In the human-technology relationship, how shall our technologies age with us?*

**Theme two: Interactional to systemic perspectives** - scenarios can vividly captures depictions ranging from interactional to pervasive scales, illustrating technologies' short and long-term effects in a sociocultural, ethical, and environmental context.

* *How can we design generative AI-enabled technologies that reveal their ongoing societal and environmental impacts over time and encourage reflection/action?*
* *Considering the societal and environmental trajectories, should generative AI-enabled technologies prepare us for, or guide us towards particular futures?*

1.2 Scenario-based ingredients

1. A ***setting or situation state***, such as a place and policy regulation.
2. ***One or more actors***, including humans, nonhumans (animals, lakes, spirits, etc.) and machines.
3. ***Agendas*** that supply the underlying motivations for actors to act.
4. ***Props***, including tools and objects.
5. ***Pervasiveness***, focusing on the what-if of technological adoption.
6. ***Systemic effects***, referring to environmental, social, and cultural impacts of technology.
7. ***Temporality***, exploring what the world would be like five, ten, or twenty years after a technology has been deployed.
8. ***Relationship dynamics***, exploring the roles played by, attributed to, implicit, and explicit in assemblages between humans and technologies - focusing attention on the types of relationships facilitated, their characteristics, and their evolution*. 🡨 Remember this ingredient is compulsory!*

You can use the above ingredients list and write under each a description of how you will use it – this is optional.

**2. Make**

**In this section, you will craft your scenario.**

* ***Give your scenario a title here: …***
* ***Write your scenario here (400 - 800 words max): …***
* ***Draw, diagram, sketch, or generate*** *1–3 accompanying visuals to present your scenario (use a full page in this document to arrange the visual/s as you wish).*

Add your images here

**3. Reflect**

**Use the following questions designed to provoke reflection on your thinking and process.   
The questions should only be read after you have completed your scenario**.

For each question below you have a maximum 150-words to articulate your reflection.

*3.1 Did you draw on any insights or recollections from materials (e.g., papers, videos, podcasts, books) to engage in this exercise? If so, what were they, and how did they shape your contributions?*

I learned a lot by participating in this exercise from many important sources. Dan Saffer's book "Designing for Interaction," which emphasized the significance of developing systems that increase user engagement and satisfaction. And it also provided a fundamental understanding of user-centered design principles. My perspective on human-AI relationships was also influenced by Sherry Turkle's "Alone Together," which emphasized the balance between dependence and meaningful interaction. By emphasizing the significance of designing AI systems that are both user-friendly and able to evolve based on human input, these resources collectively shaped my contributions by fostering a reciprocal relationship between humans and machines that fosters technological advancement and human growth without leading to excessive dependence.

*3.2 Looking at the actors in your scenario, what roles did they play in relation to one another, and which roles were explicit or implicit in their relationship? How would the dynamics change if the main actor was a child (8 years old), an elderly person (80 years old), a domesticated pet, or even a plant?*

Sam, the truck driver, was the main character in the scenario, interacting with Bailey, the AI assistant, and the City's AI Traffic System (CATS). As the human operator who oversees the delivery tasks and provides feedback to enhance the AI's functionality, Sam's role was explicit. Bailey was responsible for assisting Sam, optimizing routes, managing tasks, and developing a relationship with Sam in return. Through real-time traffic updates, CATS played a supporting role in ensuring efficient navigation.

The AI would concentrate on safety and engaging, child-friendly interactions if the main character were a child (8 years old), and the dynamics would shift toward educational and entertainment purposes. In order to ensure that an elderly person (80 years old) feels supported and independent, the AI must place an emphasis on ease of use, accessibility, and health monitoring. The AI would take care of a domesticated pet, keep an eye on its health, and play with it. On the other hand, the AI would take care of plants, monitor their environment, and optimize their growth. The AI's role would change depending on the main character's abilities and needs, ensuring that the right support and interaction are provided.

*3.3 Does your generative AI-enabled technology exhibit agency (a capacity to act) beyond its functional or technical capacity? And would you consider it a social agent capable of interacting with and influencing other social agents?*

Bailey, the generative AI-enabled technology in the scenario, does have agency beyond its technical or functional capabilities. Bailey not just performs tasks like route optimization and record the document yet additionally participates in significant connections with Sam, giving ideas, adjusting in view of criticism, and encouraging a cooperative working relationship. Beyond just technical execution, this shows a level of decision-making and adaptability.

It is possible to view Bailey as a social agent given its capabilities. Sam's actions, choices, and experience are influenced by its interaction with him. For instance, Bailey's role as a partner rather than just a tool is demonstrated by its capacity to collaborate on document reviews, make suggestions for route modifications, and incorporate feedback for future enhancements. Sam's work efficiency and contentment are influenced by this interaction, indicating Bailey's capacity to interact with and influence other social agents in the system.

*3.4 Imagine your scenario in a country vastly different from the one you originally imagined. How does the technology operate differently in this place, and how do those changes affect the human-technology relationship?*

Imagine the situation in a rural area of China, where technological adoption and infrastructure are significantly different from the original setting. The generative AI-powered technology must adjust to the local conditions, such as the varying quality of roads, linguistic requirements, and less reliable internet connectivity.

Technology Operation:

1. Connectivity: Bailey, the AI system, would be unable to function without offline capabilities and options for intermittent sync.

2. Road Conditions: Systems for autonomous driving would have to adjust to unpaved, narrow roads with erratic traffic, including pedestrians and livestock.

Impact on Human-Technology Relationship:

1. Enhanced Collaboration: The AI's offline capabilities and adaptability would increase the reliance on human supervision, ensuring safe navigation and decision-making across a variety of environments.

2. Cultural Integration: The AI would become more relatable and trustworthy with local language support and cultural sensitivity, which would increase user acceptance and interaction.

*3.5 In your scenario, what would happen to the relationships between humans, non-humans, and everyday objects imbued with generative AI capabilities if the technology were to fail (e.g., malfunction, become unavailable, or produce unintended results)? What implications might this have for someone who has grown up coexisting with this technology?*

In the scenario, Sam's delivery tasks would be significantly disrupted if the generative AI technology failed. As he manually navigates the truck, Bailey's workload, stress, and safety concerns would increase without his assistance with route optimization and document management. Such a failure would reveal a dependency problem for someone who has grown up with AI, causing stress, anxiety, and possibly skill atrophy. Users may seek a balance between reliance on AI and manual skills as trust in AI may decline. However, this experience may encourage resilience, adaptability, and a rethinking of human-AI relationships, highlighting the significance of preserving manual competence in the face of technological advancements.

*3.6 Reflect from an (1.8 Accessibility and Inclusiveness) perspective on your scenario:*

Accessibility enhancements like adjustable text sizes, voice controls, and customizable interfaces with high-contrast displays would help users with visual and dexterity impairments in Sam's autonomous truck scenario. Visual representations of sound signals would help those with hearing hindrances. Offering settings for various age groups, making navigation easier for older users, and supporting multiple languages and cultural nuances for drivers from various backgrounds are all examples of inclusive practices. Financially, adaptable elements would make the innovation available to more modest administrators. In accordance with HCI ethical standards, these modifications ensure that the AI system serves all users and fosters a more inclusive and equitable environment in the logistics industry.

*3.7 Choose two (1.9.1 Usability Goals) and two (1.9.3 Design Principles) to reflect on the technology you proposed.*

Usability Goals:

1. Effectiveness: By optimizing routes, managing documents, and providing real-time updates, the AI system Bailey aids Sam in accurately completing tasks. This guarantees that deliveries are carried out accurately and efficiently.

2. Learnability: Even though Sam is not an expert in technology, Bailey's user-friendly interface makes it easy for him to quickly comprehend and utilize its features. Because of this, drivers with varying levels of expertise can use the technology.

Design Principles:

1. Consistency: Bailey keeps a predictable plan and wording across all points of interaction, reducing disarray and assisting Sam with becoming capable with minimal training..

2. Feedback: Bailey gives quick input on Sam's activities, for example, confirming route changes or featuring significant record segments, guaranteeing he generally realizes the framework is answering properly.

**Team Evaluation Table**

Briefly describe each team member's contributions to this assignment. Only one Team Evaluation Table is needed per group.

|  |  |  |
| --- | --- | --- |
| **Full Name (UID)** | **Responsibilities/Tasks Completed** | **Contribution Level  (Choose one for each member):**   1. **A lot less** 2. **Less** 3. **Equal to others** 4. **More** 5. **A lot more** |
| Member 1 (U1234567) | e.g. Generated and wrote the scenario | e.g. Equal |
| Member 2 (U1234567) | e.g. Collaboratively worked on and wrote the reflections | e.g. Less |
| Member 3 (U1234567) | e.g. Lead the design of the images for the scenario |  |
| Member 4 (U1234567) |  |  |

**We encourage you to reach out to your tutors to arrange a one-on-one consultation if issues arise regarding each member's contributions.**

**Best practice on using GenAI**

Use of GenAI tools is allowed but you need to acknowledge their use and explain why you used them. Be honest, we will not penalise you. Acknowledging use of GenAI tools is a good practice in the industry and academia.

Our team used GenAI for this assignment:  Yes  No

If you selected yes, briefly elaborate why and how you used it:

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