Question 1: Data Gathering

a) Data types:

    i) Explain the difference between *qualitative* and *quantitative* data.

        [1 mark]

    ii) Give one example of *quantitative* data and one example of *qualitative* data, clearly stating which is which. Suggest a data capture method that could have helped you collect each result.

        [3 marks]

b) Some evaluations are conducted with users, and others are conducted without users. Explain one type of evaluation that does **not** involve users, and discuss why other types of evaluation are needed in addition to this.

        [4 marks]

c) Define the terms *within-subjects* study and *between-subjects* study, explaining where each might be suitable. Give one advantage and one disadvantage of each method.

        [5 marks]

d) Interviews and questionnaires are useful methods of gathering data from users. Explain the differences between *structured* and *un-structured* types of data gathering. In which situations would you choose each type?

        [4 marks]

e) Imagine that you have been tasked with comparing a new digital reading app to the ways that people currently read paper books. Describe a study that could be performed to compare these two approaches. Your answer should include a description of your plan for:

    • A task.
    • Pre-study, during-study, and post-study data capture methods.
    • Measures.
    • Data analysis.

        [8 marks]

Question 2: Prototyping

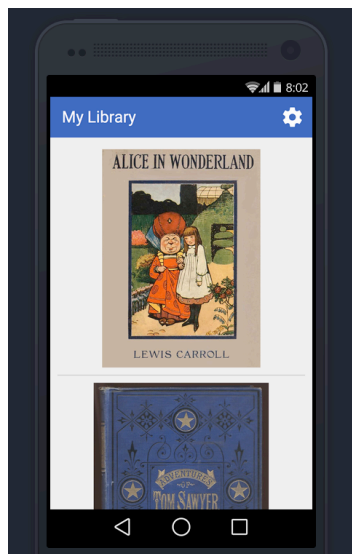a) Personas and scenarios:

    i) Explain what a *persona* is, and why it is useful.
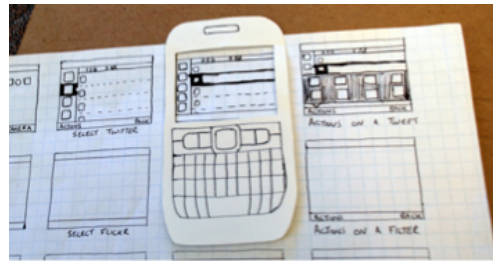
        [2 marks]

    ii) Describe the four main components of a *scenario*.
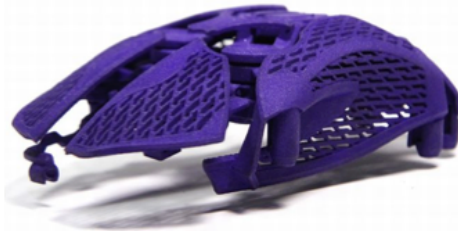
        [4 marks]

b) Pictures A, B and C below show three different types of prototypes.

A

B

C

    i) For each prototype, state whether it is *high-fidelity* or *low-fidelity*

        [3 marks]

    ii) Explain why prototyping is a useful tool in the interaction design process.

        [4 marks]

c) The *Wizard of Oz* method can be a useful prototyping technique. Imagine that you have been asked to design an app that lets a user speak to their phone to retrieve search results. Explain how you could use the Wizard of Oz method to prototype this design.

        [3 marks]

d) Imagine that you have been asked to design a system to allow people to rent a movie on their phone. Sketch a prototype of a design for this system. Your design should allow the user to browse the movie catalogue, search for titles, purchase a movie, and watch their purchased title. You should annotate your sketches, explaining how the user would interact, and show at least **four** screens of your design.

        [9 marks]

Question 3: Key Concepts

a) Affordances:

    i) Explain the HCI term *affordance.*

           [2 marks]

    ii) Explain, using a real-world example, why it is important for an object's *perceived* affordance to be similar to its *actual* affordance.

           [3 marks]

    iii) What is the term that is normally used to refer to the desirable state where the user's skill level is high and the task they are attempting is sufficiently challenging or engaging?

           [1 mark]

b) Modalities:

    i) What is an interaction *modality?*

           [2 marks]

    ii) Explain why it can be beneficial to use a range of modalities when designing and building mobile interactions.

           [4 marks]

    iii) Imagine that you are tasked with designing a mobile device to notify users when they are passing in close proximity to their friends. The device does **not** have a screen, but may use any other type of interaction.

           Use your knowledge of mobile sensors and modalities to design a possible device that would work in this situation, and show how it would give feedback to users. Use annotated sketches to explain your answer.

           [8 marks]

c) Explain the difference between mobiles that are *appliances* vs. those that are *"Swiss-Army" devices*. Suggest an advantage of each approach.

           [5 marks]