

Task AHD: research task

Exploring a topic of interest in depth

Due: several dates; read through spec for details

Aim

The aim of this task is for you to undertake a short research task and report the findings in a research report.

You should have started your distinction task prior to starting on this task.

This assessment is designed for students aiming for a HD grade. These students are expected to:

- Meet all of the expectations of the Distinction grade (i.e. must have developed a non-trivial application, and write an experience report); and
- Undertake a research task and write up a research report outlining their findings. This assignment task outlines the expectations for the research task only.

Timeline

Deliverable	Due Date
8.2HD Proposal (half/one page pitch or video)	Start of week 10 (in lab and via Doubtfire)
11.3HD Research Report	Submission via Doubtfire and Portfolio Interview (during exam period -- dates TBA)

All research proposals must be approved by the end of Week 11.

Tasks

You are expected to undertake a research task associated with the learning objectives of this unit (see the unit outline).

Research involves examining or studying some related literature/work, performing an experiment (or) proposing a new concept, and presenting your findings or concept. The safe approach is to select a question that you can answer with empirical evidence (i.e. real data). If you go down the proposing a new concept, then place this within the context of some existing work – you must back-up the concept either with real-world data or via a strong logical argument.

Developing a software system or a tool to collect data is fine, however the tool itself is not considered as research. It is what you did with the tool, why you need the tool and how the tool solves your research problem that is considered as research.

Your research does not need to be new, or even original. You are free to repeat research others have undertaken by yourself using the exact same methodology (or use a different method). In particular, you can repeat an experience that a technical magazine has conducted by yourself (for instance, checking which of the three different libraries is better for a particular task is a valid research task).

Research Report

A *Research Report* aims to document your findings related to a research topic relevant to the unit. You must examine some related literature, perform experiments, and document your findings.

- It is expected to be between 1500 - 2500 words.
- The report must contain an *Abstract*, *Introduction (including a motivation)*, *Method*, *Discussion*, *Conclusion* and *References*.
- It is expected that all research reports will contain at least 4 to 5 references and make use of images and/or tables to help convey their message.

Research Ideas

The following listing is provided as an indicate of the type of work that is acceptable for re-search. Students may select from this list, or propose their own research goal.

- What are the design trade-offs to consider when using the various sensors (or) the net-working capabilities within the context of a mobile device. Show the limitations of a de-vice by collecting data over different network capabilities (e.g. WiFi / 4G / 3G) and write a research report about these.
- What is the difference between two different mobile platforms in terms of API, development tools and approaches. (For example, iOS, Android and Windows Mobile.)
- Explore and provide recommendations on the use of NDK over the conventional Android Java-based SDK for app development. What are the trade-offs, and when issues must be considered from a software development and performance point of view?
- Propose a methodology for building a game for a mobile device (or a complex data driven application). You should aim to incorporate the full life cycle including usability as-pects in your proposed methodology. Any method should be sufficiently evaluated to ensure viability (i.e. avoid purely conceptual proposals).
- What are the design approach differences between iOS and Android. Specifically, are there any trade offs that developers must consider?
- A report that presents the usability issues that arise when developing software for de-vices with different form factors and different screen sizes. This report should be built around a concrete example rather than be a conceptual overview of the issues.
- A report that that discusses the usability considerations if an application has to be ported from Android to iOS (and vice-versa).

In the past, topics and methods included ...

- What is the nature of reviews for mobile apps? Investigated 20 apps made by big Australian brands like Coles. Studied 20 reviews for each app at all ratings.
- What is the average information density for a top 10 mobile app in the Health category? (i.e. how many different concepts / types of information do they capture or require the user to understand?)

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- What do developers do to get an app to go viral in terms of UI design? What specific hooks are put in place to help viral growth?
- Which part of the screen can users reach fastest? An investigation with 15 people.
- What is the best exercise app in the top 10 (Fitness category)? An investigation of the HCI aspects.
- How much information can I gather with my mobile phone over a weekend? Information is gathered from all the sensors and briefly visualised over three weekends.

You are welcome to take inspiration from these topics, but not replicate them exactly.

Submission

The idea must be discussed via a written pitch submitted to Doubtfire or via a video (no longer than 3 minutes; link submitted to Doubtfire) outlining your app with the unit convenor by the end of week 11. For feedback to be provided, 5.3C must be marked as complete and 7.2C must be at least submitted.

A research report can be submitted via Doubtfire for feedback during the SwotVac period. Students will be provided feedback which they can incorporate before the final portfolio interview. The final report must be submitted at least two working days before the scheduled interview.

Defense

You **will** be asked to defend your research question / goal during the portfolio interview. In particular, what was the motivation for your research and what did you find.

FAQ

What happens if a student is unable to submit the assignment?

If you are unable to submit due to medical reasons, then a medical certificate or other acceptable evidence will need to be provided. In exceptional circumstances, an email submission is permitted (with prior agreement with convenor).

What happens if assignment submission is graded as 'insufficient'?

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You will not be eligible for the High Distinction grade if the assignment is graded as insufficient during the portfolio interview. However, students can obtain feedback before the interview as noted above. Office hours (where student can drop-in without an appointment) will also be posted in Week 12.