



## **Initial plan A game with a purpose**

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## Project description

Retrieving data from humans is a strenuous and time consuming task. One of the most challenging aspects of gathering data is finding people willing to spend their time to give it. For my individual project, I aim to produce a game with a purpose which will automate data collection. The idea behind the game is to use the computational power of humans to perform a task that computers cannot (originally, image recognition) by packaging the task as a game (Wikipedia, n.d.).

The game I will be creating chooses random adjectives or nouns and asks users to provide synonyms, antonyms or hypernyms for the word. Players will be randomly matched with other players and will compete against one another. Once both players guess the same word, the game moves on to the next word. There will also be a single player version, using WordNet as a knowledgebase allowing users to test their own knowledge of the English language.

To ensure the system is a success, there are two main outputs of the project that will be considered; the game and the data. The game itself should be fun and interactive, different elements of the game will be added to ensure this. The user should be able to create an account and login, allowing them to keep their high score. Another element that I will add to the game is a leader board. By adding a leader board the game will become more competitive, encouraging people to play for longer, thus giving more data. By making the game as accessible as possible, more players can play the game meaning more data will be collected. Therefore, it is important to ensure that the website is responsive when accessing it on mobile or tablet device. The other aspect of the system that must be considered is the data collection. The data should be stored in a meaningful way to ensure it is useful. Due to the high volumes of data being stored, it is important to store it as efficiently as possible, this would help to reduce hardware costs for the final system. I will be using MongoDB for the database due to its flexibility and scalability. MongoDB can be easily scaled with no downtime, which is important for a game which may grow in the future. (MongoDB, n.d.)

## Project Aims and Objectives

The main aim of the project is to produce an online game that records data entered in a suitable manner. My project aims and objectives have been broken up into two sections, primary and secondary aims.

### Primary Aims

The following aims and objectives will be required for this project to be deemed a success:

- Develop website with a game with a purpose
  - Players can create an account to play the game or can play as a guest
  - Players can guess synonyms of the given words
  - There is a time limit on each word
  - Players can play against the computer and can play against one another
  - Players can pass on a word if they are stuck
  - The game must be playable on at least the top 4 most used browsers according to NetMarketShare (NetMarketShare, 2018)
    - Chrome
    - Firefox
    - Internet Explorer

- Edge
  - The website and game must be responsive on mobile phone and tablet devices
- Data entered during the game is recorded and stored in table
  - Data collected is secure
  - Data should be stored as efficiently as possible
  - Players details should be hashed or encrypted to ensure the security

## Secondary Aims

The next set of aims and objectives would be beneficial for the system and will be implemented if given sufficient time.

- Game with a purpose
  - Cheating in a game is prevented
    - words are only stored after 'n' pairs have agreed on it
    - test words used to check if players are playing properly
  - Players can view a leader board
  - Spelling errors/typos are realised when playing the game
  - Player can guess antonyms and hypernyms, along with synonyms of the given words.
  - When playing against the computer, there are different levels of difficulty the player can choose from.
  - Players can choose to play games against their friends, instead of being matched randomly.
  - 'Taboo' words could be included in the game to make it more challenging
- Data
  - Data collected from the game can be visualised in charts/graphs

## Ethical consideration

As I will be collecting data from people, it is important to consider ethics. I will complete the Research Integrity Online Training Programme and will complete the Ethical Approval Form at least 2 weeks before collecting data.

## Work Plan

For my work plan I have produced simple weekly plans along with a Gantt chart which is easier to visualise tasks

### Weekly Plan

Below are summaries of the tasks I plan to conduct each week. Along with the tasks I have also allocated contingency time in week 9. This is vital encase any predicted timings are incorrect, if I became ill, or if I come across an issue that I didn't anticipate or expect which delayed the

projects progress. Along with the weekly tasks I will also be meeting with my mentor each Monday except for weeks 9, 10 and 11 as this is the Easter holidays.

#### *Week 1 - 2<sup>nd</sup> February*

- Conduct background research on project and produce a report with my findings
- Create the initial plan
- Deliverable: Initial plan
- Schedule meetings with mentor for the project

#### *Week 2 - 9<sup>th</sup> February*

- Continue with background research for the report
- Create final report structure
- Deliverable: Summary of research in the report
- Write final report introduction
- Develop a suitable name for the website and logo
- Set up database for system
- Produce the requirements for the project report

#### *Week 3 - 16<sup>th</sup> February*

- Create website, coding and database designs for the system
- Deliverable: Devise a set of rules for the game
- Deliverable: Designs and discussion about designs in report
- Discuss privacy preserving techniques in report
- Create logo for website

#### *Week 4 - 23<sup>rd</sup> February*

- Create website graphics
- Create the finalised databases
- ✓ Milestone: Finished planning the system

#### *Week 5 – 2<sup>nd</sup> March*

- Create basic back end functions
- Research into sockets
- ✓ Milestone: Planning section of report is complete

#### *Week 6 – 9<sup>th</sup> March*

- Implement sockets into the system
- continue with working on the backend

#### *Week 7 - 16<sup>th</sup> March*

- ✓ Milestone: Back end of the system is complete
- Produce front end

#### *Week 8 – 23<sup>rd</sup> March*

- ✓ Milestone: Front end of the system is complete
- Join front with back end

#### *Week 9 – 30<sup>th</sup> March*

- Contingency week- catch up with any missed deadlines and finalise the system

- ✓ Milestone: The system works
- Refinements and improvements on the system

#### *Week 10 – 6<sup>th</sup> April*

- Report writing
- Begin usability testing
- Test security of system
- Deliverable: Results from the testing showcased in the report

#### *Week 11 – 13<sup>th</sup> April*

- Make any final changes to the system after testing feedback
- Deliverable: The final completed system

#### *Week 12 – 20<sup>th</sup> April*

- Write Conclusion and Evaluation

#### *Week 13 - 27<sup>th</sup> April*

- Finalise report
- ✓ Milestone: Finished writing report
- Deliverable: Final completed report

# Gantt Chart

- ◆ =Milestone
- ◆ =Deliverable

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Initial Report	█	█											
Background Research	█	█	█	◆									
Create Final Report structure		█	█										
Create system requirements for final report		█	█										
Create system designs and discuss about them		█	█	█	◆								
Devise a set of rules for game		█	█	█	◆								
Research Sockets				█	█	◆							
Completed Planning					◆								
Create basic backend functions					█	█							
Work on backend						█	█						
Implement sockets into backend						█	█						
Backend of system is complete							◆						
Begin implementing the front end of the system							█	█					
Complete front end of system								█					
Join front and backend								█	█				
Contingency time									█	█			
System works										◆			
Discuss producing front and backend of system in report									█	█			
Usability testing									█	█			
Security testing										█	█		
Display and discuss testing results in report											█	█	◆
Make adjustments to system											█	█	◆
Write conclusion and evaluation												█	█
Finalise report													█

## Works Cited

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