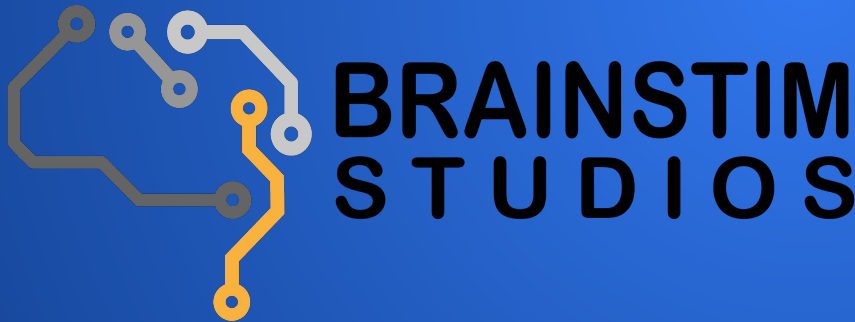# Bringing WordScuffle to the Web

Project sponsor: Barbara Jenkins   **Team mentor:** Ana Paula C. Steinmacher

NAU Budget Office

Vincent Messenger - Project Lead / Backend Developer

Anderson Moyers - Frontend Developer

Andy Salazar - Backend Developer

Nathan Franklin - Frontend Developer

BRAINSTIM
STUDIOS

Problem Statement

Alzheimer's Disease

Neurodegenerative disease, years to progress, cognitive decline finally results in organ failure

30 million deaths worldwide / year

$259 billion American healthcare, $1 trillion 2050

Mental/social stimulation may reduce risk of AD

Existing platforms don't offer social components

Problem Statement

WordScuffle™

Multiplayer word game created by Barbara Jenkins

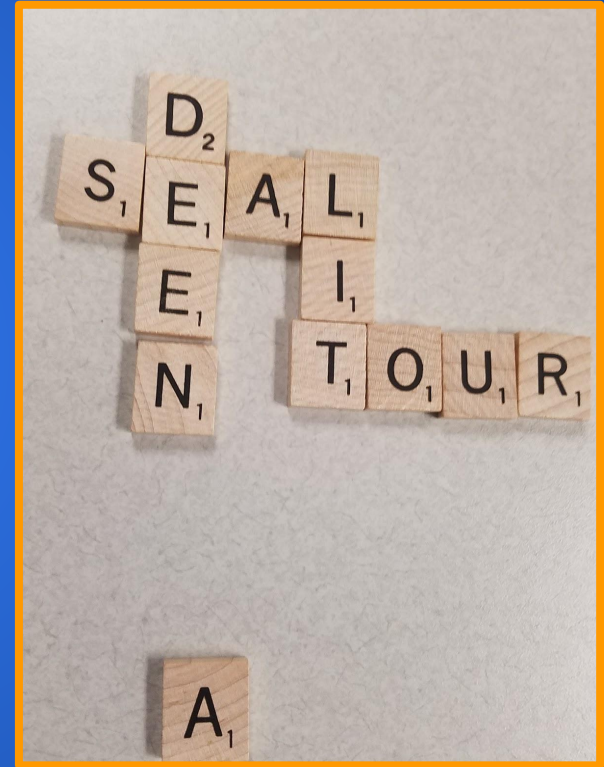Supports cognitive and social brain flexing

13-Letter tile set generated for each round

Players have three minutes to form word combos

Players roll dice to determine letters ➡ cumbersome
Each player keeps their own score ➡ time, errors
Players email their scores/results ➡ time, energy

Solution Overview

WordScuffle™
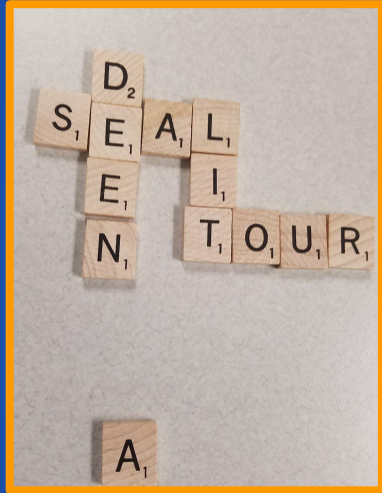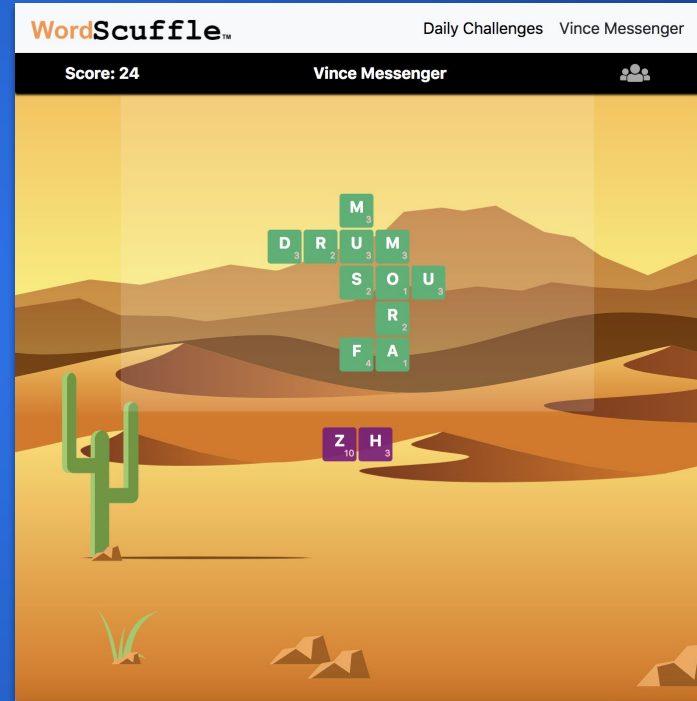
+

Solution Overview

ORIGINAL GAME

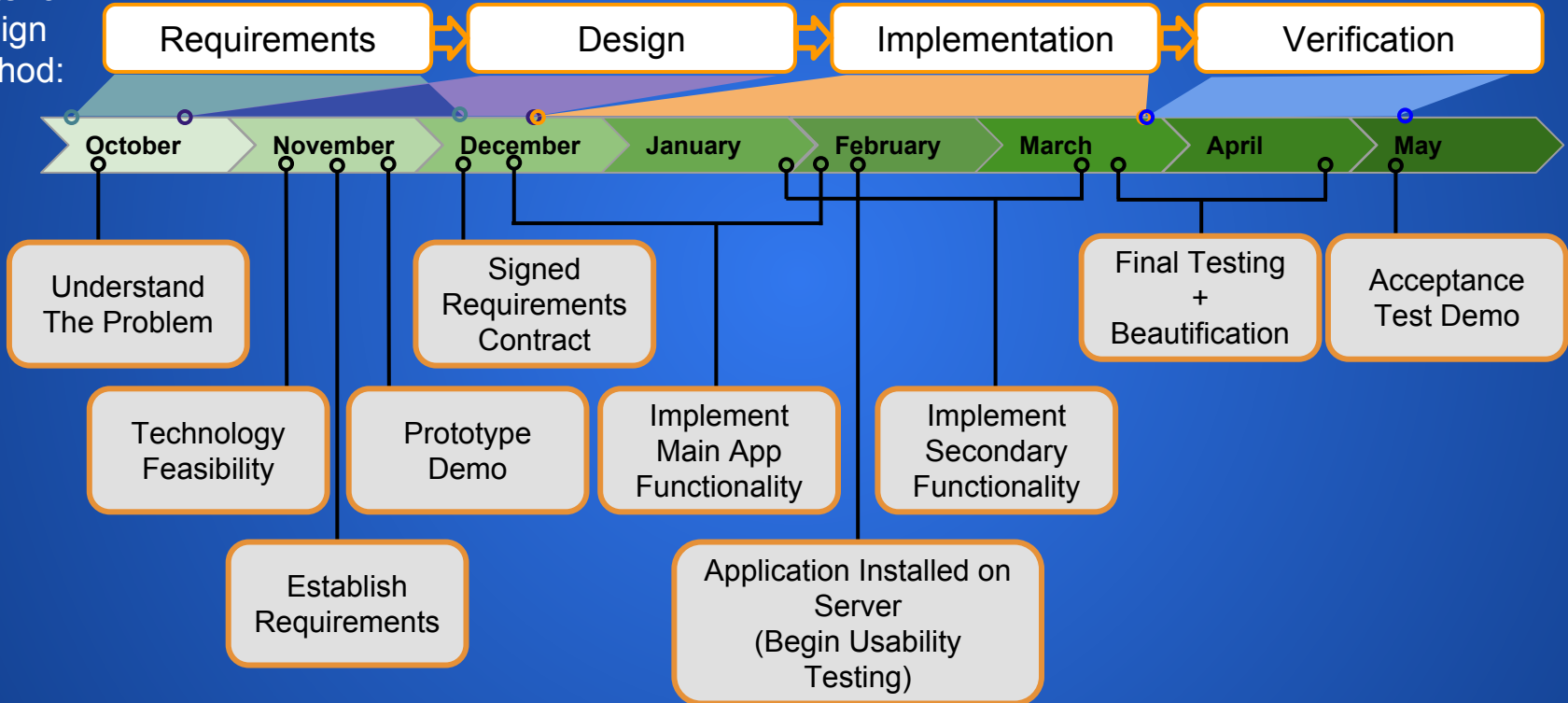

OUR SOLUTION

WEBIFY

Players roll dice to determine letters
cumbersome
Each player keeps their own score
time, errors
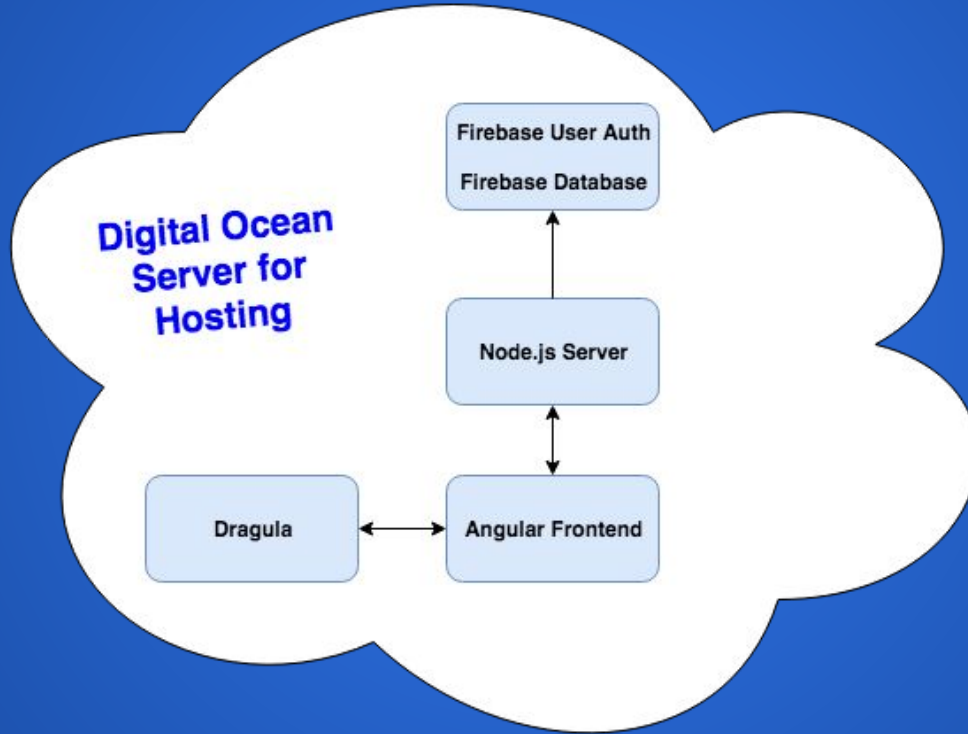Players email their scores/results
time, energy

Requirements

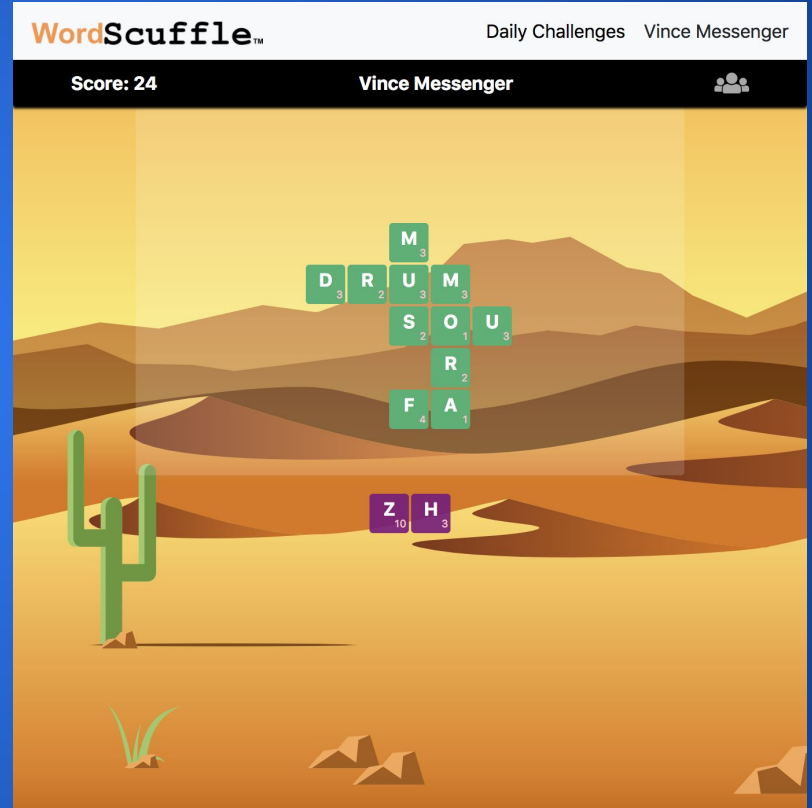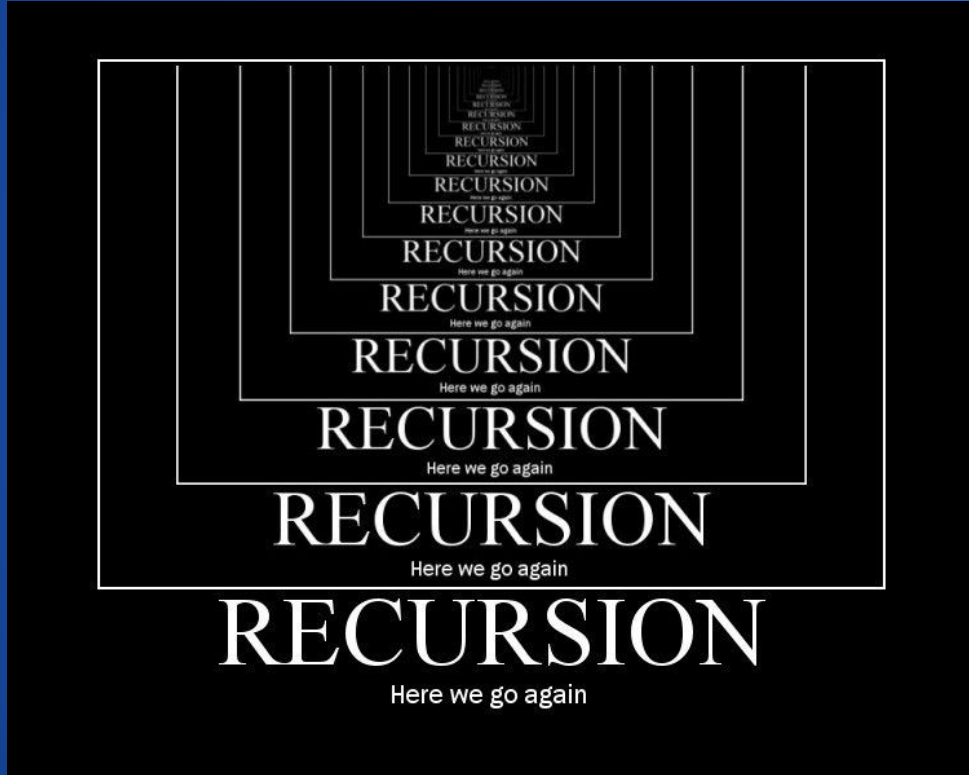| Feature	ORIGINAL GAME	OUR WEB APP
Tileset Generation	Roll Dice	Server randomizes automatically
Time/Score Keeping	Players track on pen/paper	App tracks in real time
Score Comparison	Players exchange emails	Players can add friends and view scores
Word Validation	None	Server validates words with Tournament Word List in real time

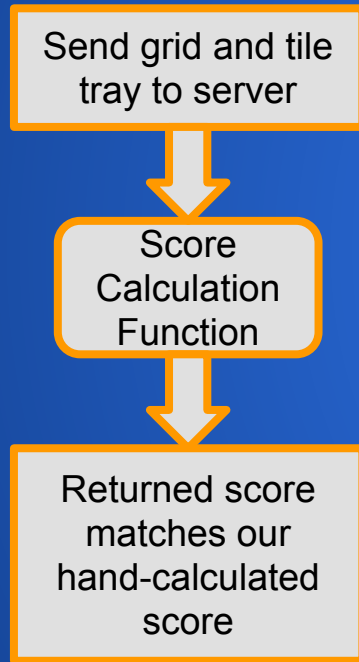# Design Methodology and Timeline

Waterfall Design Method:

Requirements → Design → Implementation → Verification

October | November | December | January | February | March | April | May

Understand The Problem

Technology Feasibility

Establish Requirements

Prototype Demo

Signed Requirements Contract

Implement Main App Functionality

Application Installed on Server (Begin Usability Testing)

Implement Secondary Functionality

Final Testing + Beautification

Acceptance Test Demo

7

Architecture Overview

Grid Validation?

Prototype Demo

Testing

Unit Testing

Send grid and tile tray to server

⬇

Score Calculation Function

⬇

Returned score matches our hand-calculated score

Integration Testing

Admin page button only visible for users flagged as administrators

⬇

Server re-verifies user is administrator, then client webpage is redirected to admin page

Usability Testing

User logs in

⬇

Webpage directed to challenges page

⬇

The most-used functions are easiest to access from this page
- Start next challenge
- View Scores

Challenges & Resolutions
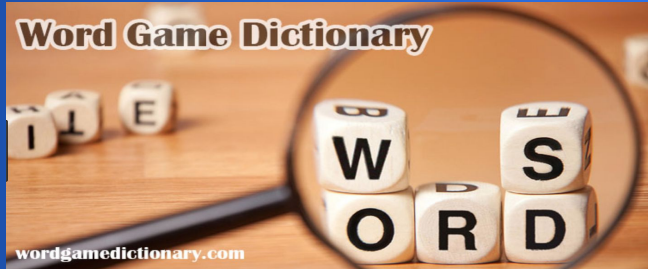
CHALLENGES	RESOLUTIONS
	Loaded tournament word list into server side hash table.
	Manually solved issue with Dragula and game grid.

Future

- Monetization

- Played Words Definitions

- Third Game Mode Type

Conclusion

Word**Scuffle**™

    Provides cognitive and social brain-flexing

    Addresses gaps in existing platforms

Realizing WordScuffle

    As a dynamic web application

    Resolving workflow problems

    Furthering gameplay which may reduce AD risk

WordScuffle ™

Project sponsor: Barbara Jenkins
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Thank you!

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