SE 3XA3: Software Requirements Specification
DNA Says

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1   Functional Requirements

- Requirement #1

  - Description: The user will be able to open the executable file.
  - Rationale: The user must be able to open the game.
  - Fit Criterion: A new window will open on the user's computer screen.

- Requirement #2

  - Description: The game interface will open in a new window.
  - Rationale: The game will be operated in a separate window.
  - Fit Criterion: A new window will appear on the user's computer screen

- Requirement #3

  - Description: The game will have 3 separate modes - Kareem Says, JP Says, and Shady Says.
  - Rationale: The game is designed to have 3 distinct modes.
  - Fit Criterion: The three different modes will be displayed in the main menu of the game.

- Requirement #4

  - Description: The user will be able to select one of the three modes to play.
  - Rationale: The user must be able to play one mode at a time.
  - Fit Criterion: The user will be able to select one of the three modes displayed in the main menu of the game.

- Requirement #5

  - Description: The main menu will display the three different modes.
  - Rationale: The user must be able to view which mode they wish to select.

- Fit Criterion: Three distinct icons will be displayed in the main menu.

- Requirement #6

  - Description: If Kareem Says is selected, then a piano will be displayed on the screen, otherwise nine squared buttons will show up for JP Says, and four for Shady Says.

  - Rationale: The game is designed to have different interfaces for each mode.

  - Fit Criterion: When a user selects a mode - accordingly, either a piano will show up, nine buttons or four buttons.

- Requirement #7

  - Description: Each button will light up and produce a different sound when clicked.

  - Rationale: This gives the user the ability to detect the pattern that will be displayed.

  - Fit Criterion: When the user clicks a button, the button will light up and produce a sound.

- Requirement #8

  - Description: The user will be able to exit the game at any time and go back to the main menu.

  - Rationale: The user must have a means of exiting an ongoing game and return to the main menu.

  - Fit Criterion: When the user clicks the main menu button, they will find their screen in the main menu window.

- Requirement #9

  - Description: Every time a user passes a level, the score goes up by one point.

  - Rationale: A record of a user's score must be kept.

  - Fit Criterion: At level N, the score = N.

- Requirement #10

    - Description: Every time a user fails a level, the score is reset to zeo.

    - Rationale: When a user fails a level, the game must restart from level one.

    - Fit Criterion: Whenever the user makes a mistake, the score text will reset to zero.

- Requirement #11

    - Description: There will be a score icon in the top right corner.

    - Rationale: The user must be able to view their score.

    - Fit Criterion: When the user selects a mode, the score icon will be set to zero.

- Requirement #12

    - Description: At level N, a random pattern of N disks will light up and be displayed to the user.

    - Rationale: The pattern's length will increase as the levels progress.

    - Fit Criterion: During level one, one random button will light up and sound.

- Requirement #13

    - Description: The user cannot click the button while the pattern is being displayed.

    - Rationale: The pattern must be displayed to the user in full effect.

    - Fit Criterion: The program will not record clicks the user inputs during this time.

- Requirement #14

    - Description: The user will be able to click the buttons once the pattern has been displayed.

    - Rationale: The user must repeat the pattern correctly to pass the level.

– Fit Criterion: The program will monitor the user's input clicks to determine if the entry is correct or not.

- Requirement #15

  – Description: A level is passed if the user repeats the pattern correctly.

  – Rationale: The user will be able to progress through the game.

  – Fit Criterion: The score will be increased by 1 when the user is successful.

- Requirement #16

  – Description: If the user fails, the game will restart - I.e. N = 1.

  – Rationale: The user must restart from the beginning of the game when a mistake is made.

  – Fit Criterion: Whenever a mistake is made, the user will be directed to level one.

2 Non-functional Requirements

2.1 Look and Feel Requirements

2.1.1 Appearance Requirements

- Requirement #1

  – Description: The product shall have an appealing colorful appearance.

  – Rationale: The display should always be engaging so as to keep user interested in game. The product must be aesthetically pleasing and easy to use to benet the end-users

  – Originator: Shady Nessim

  – Fit Criterion: Stakeholder satisfaction regarding the appearance, user attraction to game.

  – Priority: High

- History: Created October 5, 2016

- Requirement #2

  - Description: The buttons must be well designed and colored.
  - Rationale: The game revolves around pressing buttons in a pattern. It is the main entity of the game and must thus be aesthetically pleasing to attract user interest
  - Originator: Shady Nessim
  - Fit Criterion: User reaches high levels as a result of uniqueness and beauty of buttons.
  - Priority: High
  - History: Created October 5, 2016

- Requirement #3

  - Description: The product shall have attractive sound patterns. The associated sounds with buttons must be well constructed and notes must follow harmonically.
  - Rationale: The user follows a pattern based on colors and sounds, the sounds must thus be well designed to be easy to follow. When user hears an attractive pattern, naturally they are inclined to repeat it.
  - Originator: Shady Nessim
  - Fit Criterion: User shall be invested in game and spend a lot of time playing the game.
  - Priority: High
  - History: Created October 5, 2016

2.1.2 Style Requirements

- Requirement #4

- Description: The product shall have enough buttons to keep game engaging but not too many as to make the screen feel cluttered. DNA Says will appear to be a bright upbeat game.
- Rationale: The game must induce a style and feel to the user that will be a driving factor to use the game if the user likes the style of the game
- Originator: Shady Nessim
- Fit Criterion: Stakeholder satisfaction regarding the style, user attraction to game.
- Priority: Medium
- History: Created October 5, 2016

2.2 Usability and Humanity Requirements

2.2.1 Ease of Use Requirements

- Requirement #5

  - Description: The product shall be easy to use for people of all ages, including children.
  - Rationale: The game involves no reading or writing, it does not involve intelligence either. The game involves short term memory. As such it should be easy to use for all people to improve their short term memory.
  - Originator: Shady Nessim
  - Fit Criterion: User figures out how to play the game within the first couple of minutes of use.
  - Priority: High
  - History: Created October 5, 2016

- Requirement #6

  - Description: The product shall be easy to install for all users.
  - Rationale: This product is simply a game so the user will probably not go through the trouble of downloading and installing the game if it is not an easy process.

- Originator: Shady Nessim
- Fit Criterion: User easily downloads and installs the game in a timely manner.
- Priority: High
- History: Created October 5, 2016

2.2.2 Personalization and Internationalization Requirements

- Requirement #7

  - Description: The product shall operate with the English language.
  - Rationale: The application is intended for use by English and non-English speakers, however with minimal required text use, this game can easily be figured out and used by non-English speakers
  - Originator: Shady Nessim
  - Fit Criterion: User easily understands objective of game and how to play.
  - Priority: Medium
  - History: Created October 5, 2016

2.2.3 Learning Requirements

- Requirement #8

  - Description: The application shall not require a tutorial and shall be clear and simple enough in early levels to communicate to the user how the game is played.
  - Rationale: The application is intended for use by people of all ages. Must thus be easy to understand.
  - Originator: Shady Nessim
  - Fit Criterion: User easily understands objective of game and how to play.
  - Priority: Medium
  - History: Created October 5, 2016

2.2.4 Understandability and Politeness Requirements

- Requirement #9

  - Description: The application shall not produce ugly sound patterns or offensive visual patterns to respect all users.
  - Rationale: The application is intended for entertainment and as a cure for boredom, if user feels uncomfortable or offended they will not use the game.
  - Originator: Shady Nessim
  - Fit Criterion: User feels good about game and patterns are appealing and attractive.
  - Priority: Medium
  - History: Created October 5, 2016

- Requirement #10

  - Description: The product shall produce a friendly indication when user loses or wins a level.
  - Rationale: The application is intended for entertainment and as a cure for boredom, if user feels uncomfortable or offended they will not use the game.
  - Originator: Shady Nessim
  - Fit Criterion: User feels good about level progression and is encouraged to play again.
  - Priority: Medium
  - History: Created October 5, 2016

2.2.5 Accessibility Requirements

- Requirement #11

  - Description: The product shall produce patterns both visually and auditory so as to accommodate for users with visual or auditory problems that they can use an alternative pattern means.

- Rationale: The application is intended all users, should be easy to use for someone by just following visual patterns or just following auditory patterns.

- Originator: Shady Nessim

- Fit Criterion: User with auditory or visual problems feel comfortable playing the game.

- Priority: Medium

- History: Created October 5, 2016

2.3 Performance Requirements

2.3.1 Speed and Latency Requirements

- Requirement #12

  - Description: The application should be able to recognize whether the user has entered the right pattern as soon as they finish pressing the last button.

  - Rationale: The user should not have to wait for the application to calculate whether their input was correct or not.

  - Originator: Shady Nessim

  - Fit Criterion: Application should respond immediately to user input and the upcoming pattern should start soon after user input ends.

  - Priority: High

  - History: Created October 5, 2016

2.3.2 Safety Critical Requirements

There are none applicable to this project.

2.3.3 Precision of Accuracy Requirements

- Requirement #13

  - Description: The application must be specific to each button press. Button press confusion or mistake must not be tolerated.

- Rationale: The purpose of the game is to produce exact same pattern shown by application. If program does not detect a mistake even if it is just one wrong button, then that defeats the fairness and purpose of the game.

- Originator: Shady Nessim

- Fit Criterion: Application should perceive and evaluate user pattern input impeccably.

- Priority: High

- History: Created October 5, 2016

2.3.4 Reliability and Availability Requirements

- Requirement #14

  - Description: The application must be available at all times.

  - Rationale: The purpose of the game is to defeat boredom which may come at any time and thus the game must be available at all times.

  - Originator: Shady Nessim

  - Fit Criterion: User should be able to play the game whenever they are bored.

  - Priority: High

  - History: Created October 5, 2016

2.3.5 Capacity Requirements

- Requirement #15

  - Description: The application must be able to produce and receive patterns as long as 25 buttons.

  - Rationale: In order to make the game challenging enough, patterns up to 25 in length should be produced and received by program.

  - Originator: Shady Nessim

  - Fit Criterion: User should be able to reach level 25 in each mode.

- Priority: Medium
  - History: Created October 5, 2016

2.3.6 Scalability Requirements

There are none applicable to the project.

2.3.7 Longevity Requirements

There are none applicable to the project.

2.4 Operational and Environmental Requirements

2.4.1 Expected Physical Environment

- Requirement #16

  - Description: The product should be able to be used on laptops and desktops.
  - Rationale: The clients will use the product from these devices.
  - Originator: Shady Nessim
  - Fit Criterion: User should be able to run the game on any laptop or desktop.
  - Priority: High
  - History: Created October 8, 2016

2.4.2 Release Requirements

- Requirement #17

  - Description: The product will be revised yearly and updated according to changing demands and needs of the client. The product will undergo maintenance upon realization of any errors in gameplay behavior.
  - Rationale: The game has to stay updated and problems have to be handled in order to maintain user interest and usage.
  - Originator: Shady Nessim

– Fit Criterion: App should be updated at least annually.

– Priority: Medium

– History: Created October 8, 2016

2.5   Maintainability and Support Requirements

2.5.1   Maintenance Requirement

- Requirement #18

  – Description: The source code for the application shall be visible to the public.

  – Rationale: This enhances the ability to monitor and maintain the system.

  – Originator: Shady Nessim

  – Fit Criterion: Source code is available in a public repository.

  – Priority: Low

  – History: Created October 10, 2016

2.5.2   Supportability Requirements

None applicable for this project.

2.5.3   Adaptability Requirements

- Requirement #19

  – Description: The product shall run on Windows, Linux and Mac OS X environments.

  – Rationale: The users may be using any of these operating systems.

  – Originator: Shady Nessim

  – Fit Criterion: The product works on listed platforms in the test groups.

  – Priority: Medium

  – History: Created October 10, 2016

2.6　Security Requirements

2.6.1　Privacy Requirements

- Requirement #20

  - Description: The application shall not store, transmit, or upload any user data.
  - Rationale: This is required in order to protect the privacy of users.
  - Originator: Shady Nessim
  - Fit Criterion: No functionality to perform these tasks is implemented in the application.
  - Priority: Low
  - History: Created October 10, 2016

2.7　Cultural Requirements

- Requirement #21

  - Description: The application shall not contain any imagery or text that can be reasonably foreseen as potentially oensive to users of all cultures, backgrounds and ethnicities.
  - Rationale: User satisfaction will be greatly reduced if they notice any offensive patterns in the game.
  - Originator: Shady Nessim
  - Fit Criterion: Application does not contain offensive patterns or references.
  - Priority: Medium
  - History: Created October 10, 2016

2.8　Legal Requirements

There are none applicable to this project.