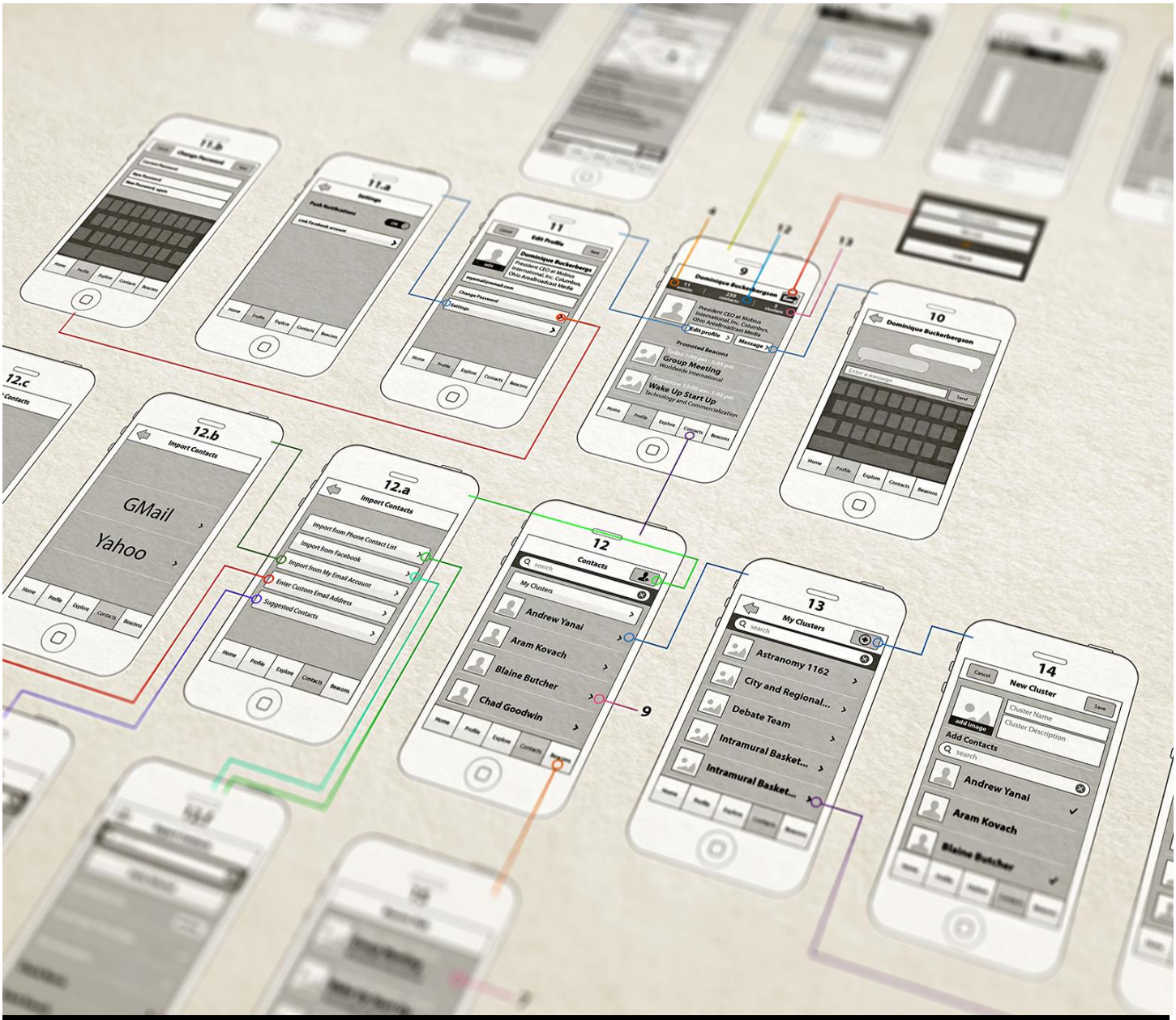

Charles Sturt University

INTERFACE USEABILITY

Lecturer: Dr. Sudath Heiyanthuduwage

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6/10/20

ITC504 Interface Useability

1. Define what you see as:

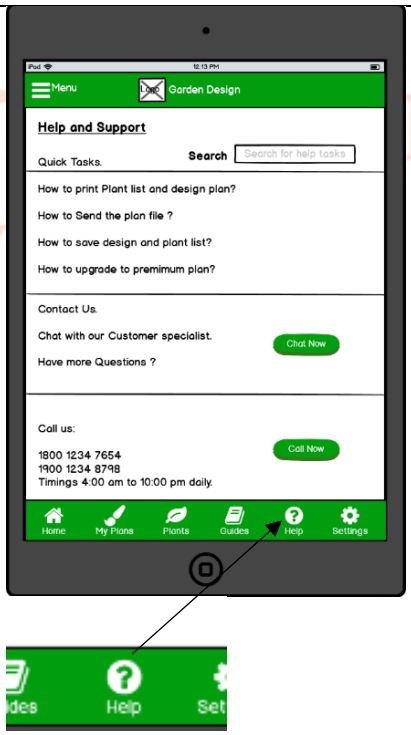
The user requirements for this proposed system (5 Marks);

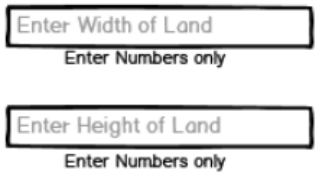
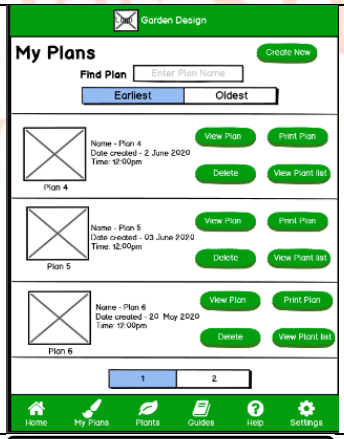
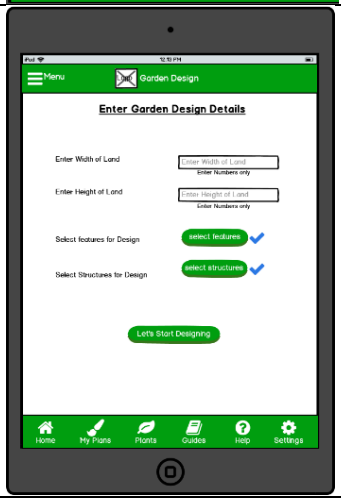
#	**Requirements**
1	Application should allow users to enter the details of a block of land, its features and vegetation to create a garden plan.
2	Users should then be able to add any features that they wish, such as paths, water features, rock gardens, etc., to the garden plan
3	Users should be able to plan for structures, such as patios, terraces, fences, walls, etc.
4	Both features and structures should be able to have their final size and shape adjusted when added to the garden plan.
5	The application should provide a list of plants and shrubs that are usually available from the Regional Gardens Nursery.
6	Plants that are selected from this list should be able to be placed on the garden plan and show their approximate full-grown size and shape (height and width).
7	Plants that are selected and used in the garden plan should be kept in a list for the user.
8	The application should allow the user to print the entire garden plan or any part that is required
9	The plants list should also be available to print along with the garden plan.

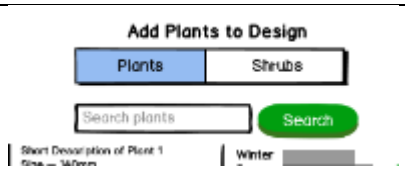
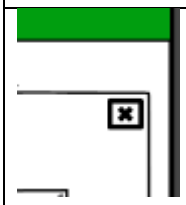
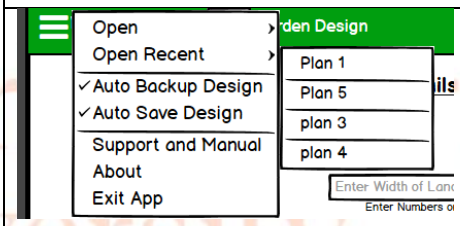
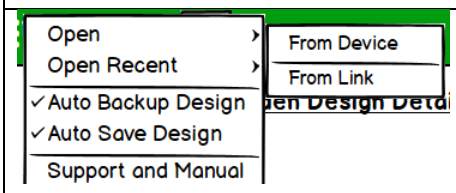
2. The constraints on this proposed system (5 Marks);

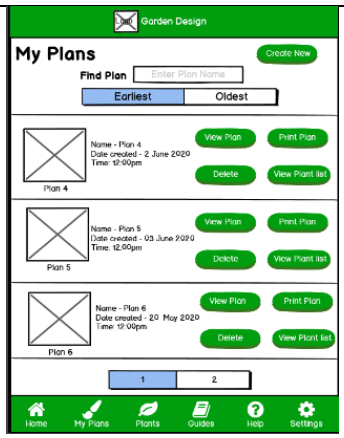
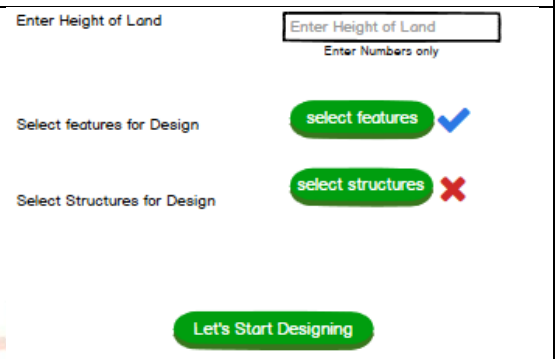
#	**Constraints**
	Constraints can be related to technologies to be used, designs to be made and the potential users. Need to identify from the case study and list them one after the other
1	Cannot print plant list or design if there is no printer attached to phone or tab.
2	Application cannot run on windows and Linux. Application cannot be opened in personal computer.
3	Only plants and shrubs are available which are accessed from the Regional Garden Nursery Ltd.
4	iOS support version from 11. Android support version from 5(jellybean). Older versions do not support the application
5	Application can work offline and offline.
6	User cannot buy plants or shrubs form the application
7	Minimum required RAM is should be greater than 2gb in tab or mobile. Otherwise the application might get stuck while designing the garden plan.

3. Justify your design decisions with reference to design principles (10 Marks);

#	Design Decision	Reason(s)	Related Design Principle	Evidence (sections of screens from your design)
1	Logo and title are included in all screens	Trust and credibility. To let the users, know the application name and its logo.	Consistency and standards	
2	Adequate assistance is included within the application. Help button is integrated in all screens	To assist few users with solutions who could not perform some tasks or whenever they are confused or have questions about anything, the built-in help support is always available in the footer and its very useable.	Help and documentation, Consistency and standards	
3	Speaking the language of the user	Followed real world conventions because it makes information	Match between system and real world	

		appear in a natural and logical order		
4	Alerting the user to enter numbers only instead of other characters	User may sometimes enter text or symbols, so to prevent such errors we used an alert sign text under input to let the user know.	Error Prevention	
5	Selected green color for header and footer	Based on color psychology, green color is referred as nature, peace. So, its best suits for garden app, such that users should feel they are really in the garden.	Aesthetic and Minimalistic design, Visibility of System Status	
	Resisting the temptation to display additional info on the selection screen.	For minimalistic design, we are prioritizing elements and information presented on the screen is relevant.		

6	Added two navigation options Plants and shrubs for user to select and add to the design. Search button and input box is included below it.	Helps user to easily select and switch between plants and shrubs. Also, user can search for particular plant or shrub according to his/her needs.	Flexibility and Efficiency of use, User control and freedom	
	Included a close sign on the pop-up windows	User has the freedom to close the current window or pop up and add other features or structures		
	Auto Save the design, and auto backup of design is included in the menu option.	When ever user wants to save or back up the hard-worked plan, he/she can select any of the two options which will automatically save/backup the file		
	Open and open recent menu option is included in the navigation menu.	Here user can open the saved plan file or file which is transferred from another user from the device or link. User can also open the recent plan.		

8	Green Color is chosen for the application interface buttons, navigation buttons and footer, header.	Green color basically reefer's to nature, peace. So, its best suits for garden app, such that users should feel they are really present or interacting in the garden.	Match between real world	
9	Preventing errors and validation when user doesn't select or add any plant or shrub. Also, without selecting vegetation, user cannot move to next screen.	User may sometimes miss the selection or did not select any vegetation, then a red cross icon is shown next to the button. This helps diagnose, validate and prevent from errors.	Help users recognize, diagnose, and recover from errors	

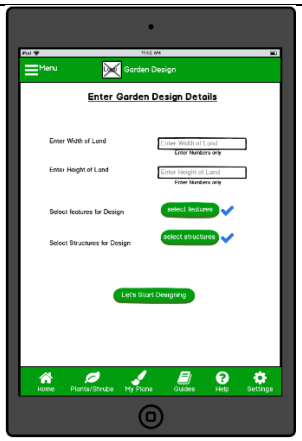
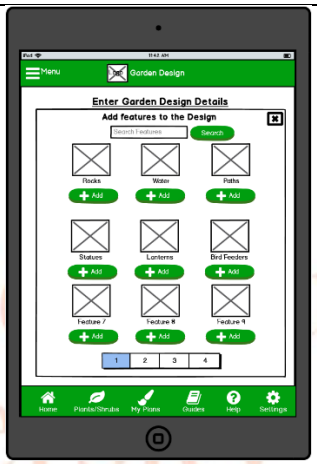
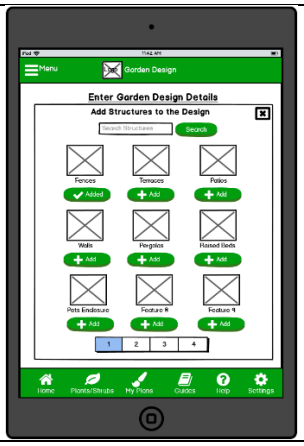
2.Design an interface for this proposed system.

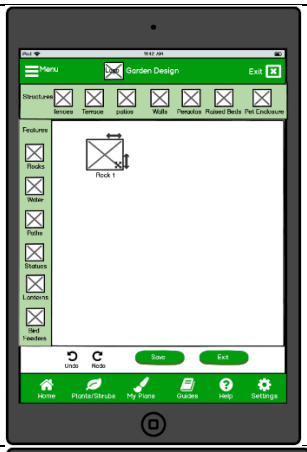
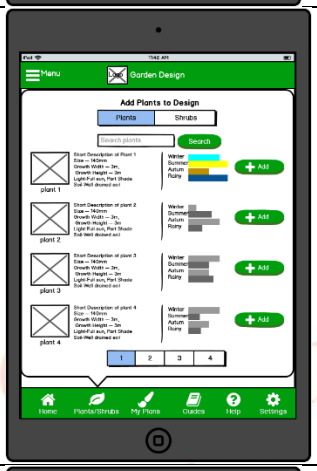
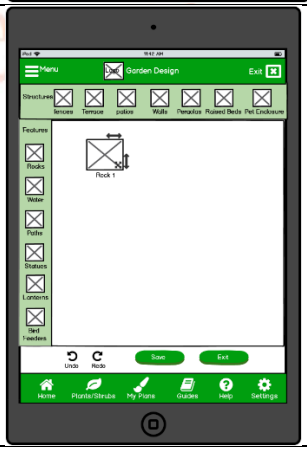
Your design should consist of a wireframe of your proposed interface. It should clearly show all the major features of your design and each feature should be clearly labelled and identified. The design must:

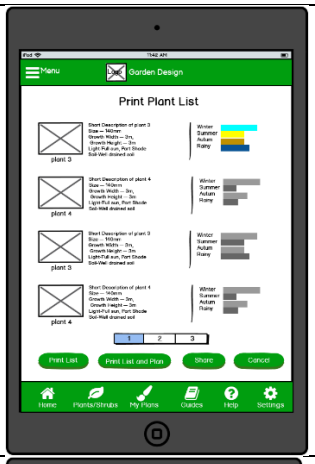
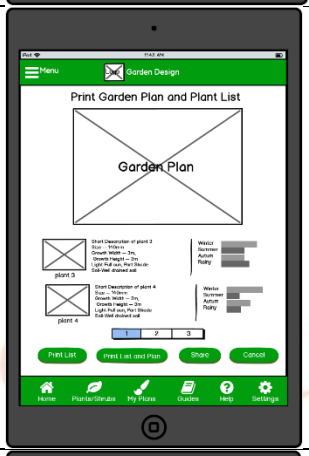
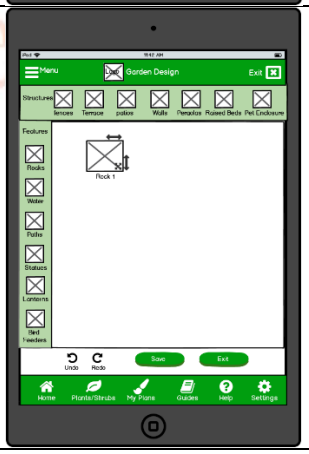
Meet all the requirements laid out in the case study; (10 marks)

Include this in Balsamiq Screen 2 (Screen 1 should include your and subject details)

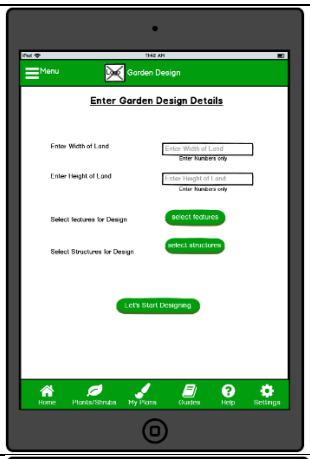
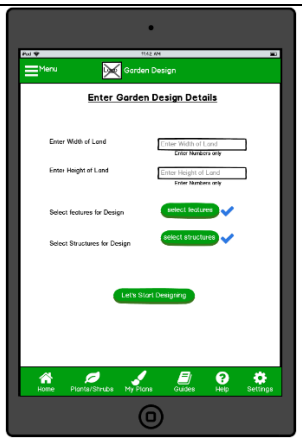
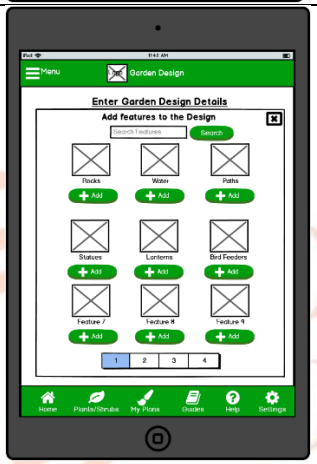
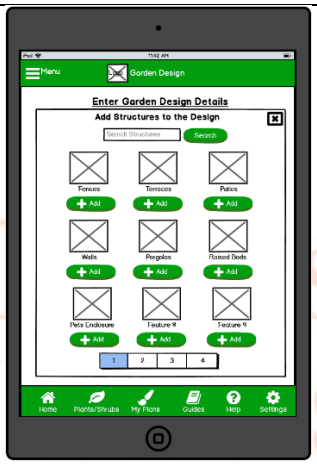
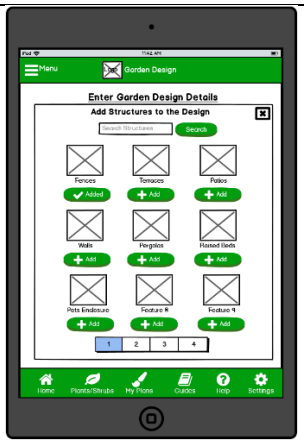
#	**Requirements**	**Justification**	**Evidence**
	Identified from the case study and list them one after the other.	**What design screens did you design?**	**Refer to screens/figures in Part b.**
1	Application should allow users to enter the details of a	1-This design screen has two number input blocks where user	

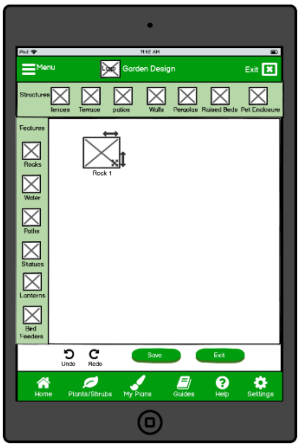
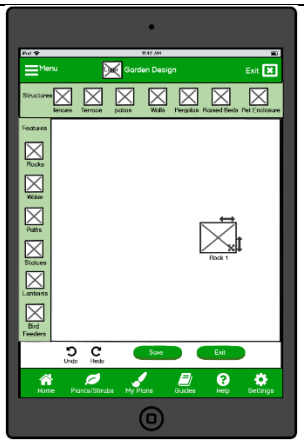
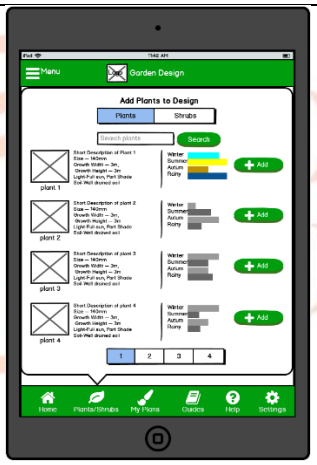
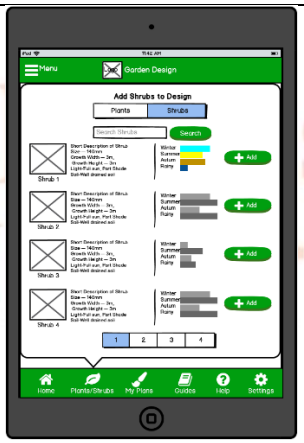
	block of land, its features and vegetation to create a garden plan	has to enter land width and height. 2- There are also two buttons included which are used to select the features and structures required for the design plan according to user needs. 3-user can click let's start button to navigate to the empty garden plan screen to start designing.	
2	Users should then be able to add any features that they wish, such as paths, water features, rock gardens, etc., to the garden plan	1-The design is developed based on the flexibility and efficiency of use, because when user click select features or structures a pop up in displayed on the screen. This helps improve application performance, flexibility of adding or searching for the required features/structures. 2-user is provided with pagination where navigation can be performed to move to other screen for adding more features to the design plan.	
3	Users should be able to plan for structures, such as patios, terraces, fences, walls, etc.	1-Error prevention and data validation is being done in this screen. 2-After user selects the features or structures, tick mark is show next to the button. If the user did not select any structure then a red cross mark is show, which means that the user did not select any structure and cannot start designing.	

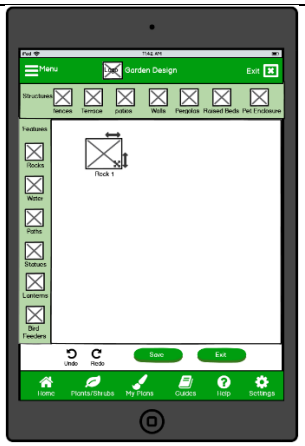
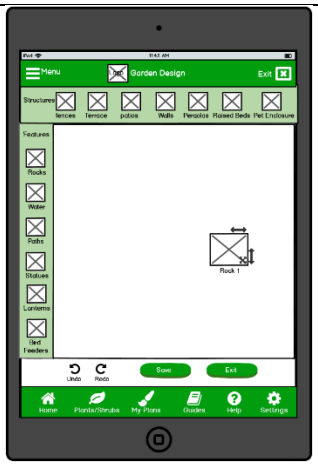
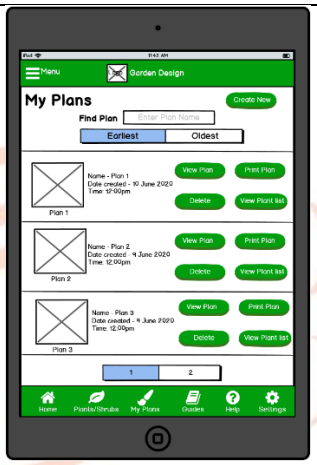
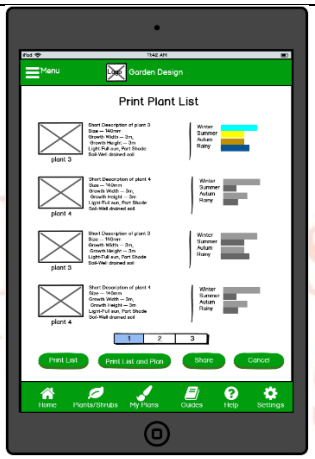
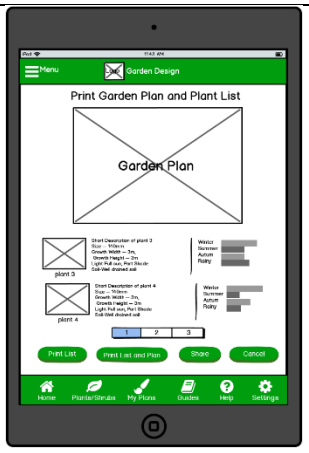
4	Both features and structures should be able to have their final size and shape adjusted when added to the garden plan	1-This design decision is made based on the interactive playground, where user can drag and drop on to the screen. 2- User can then be able to adjust shape or size of the feature or structure.	
5	The application should provide a list of plants and shrubs that are usually available from the Regional Gardens Nursery.	1-plants and shrubs list are accessed from the regional gardens' nursery. 2-they are then made available to the users to select or add to the design screen from the footer screen.	
6	Plants that are selected from this list should be able to be placed on the garden plan and show their approximate full-grown size and shape (height and width).	1-The decision here was to let the user add or drag the feature or structure to the garden design plan. 2- After placing the feature on the screen, user has the flexibility and freedom to change its height and width by dragging it to right, down or expanding its size by clicking on the cross icon in corner of image and dragging it.	

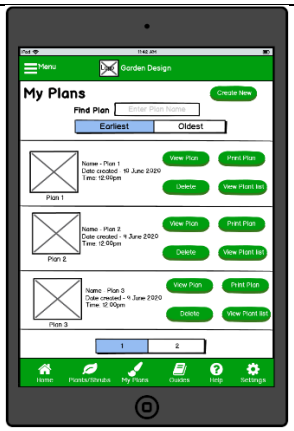
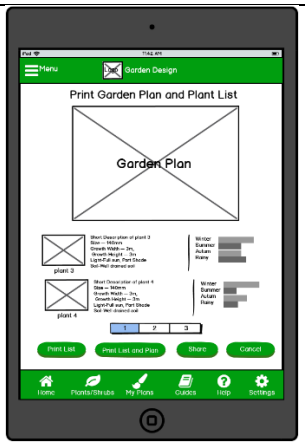
7	Plants that are selected and used in the garden plan should be kept in a list for the user.	1-This decision is crucial because the plant list that was used in garden plan can be conducive in future. 2-for that purpose plant and shrubs list is saved separately.	
8	The application should allow the user to print the entire garden plan or any part that is required	1-This design decision was to allow the user to print the complete plan by clicking on the print plan button or can have freedom to crop it or print any part which is needed.	
9	The plants list should also be available to print along with the garden plan.	1-the decision made here was to allow the user to print or share the design plan, plant and shrubs list together. 2-for that purpose, user can click on view plan in my plans and then next screen provides two buttons to user, print plan, print plan and plant list. 3-the decision to print can be made by the user when user view's my plan list.	

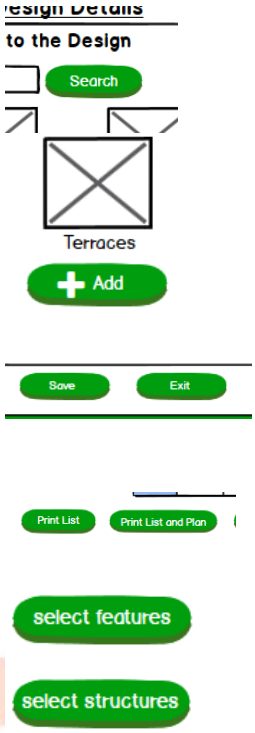
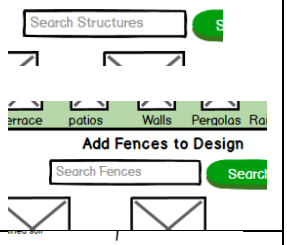
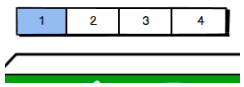
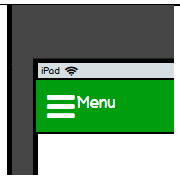
Include all pages required for the final implementation of the design (10marks)

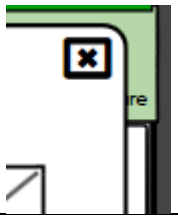
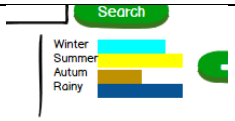
#	Requirements	Screens Designed		Purpose	How to use it
	From Part a	Screen	Screen		
1	It should allow users to enter the details of a block of land, its features and vegetation to create a garden plan			The purpose of this page is very crucial because user has to enter the land and select the vegetation details. Without selecting these, user cannot start the design plan.	1-When application is opened, user should click on the next button. 2-Subsequently user has to enter land width and height 3-then select features and structures needed for garden plan.
2	Users should then be able to add any features that they wish, such as paths, water features, rock gardens, etc., to the garden plan			This screen is interlinked with the above screen. User has freedom to select features and structures needed to add to the garden plan. Then add it to the garden design plan list by clicking add button.	1-when user clicks on select features or structures button this screen pop ups and allows user to add them by clicking on add button 2-User also has freedom to search and navigate to another screen with other list by clicking on pagination numbers.
3	Users should be able to plan for structures, such as patios, terraces, fences, walls, etc.			The purpose of this page is imperative because user is given a list of features (rock,water,path etc) and structure(fences, terrace, patios etc) which then can be included to the plan.	1-when provided with the list of structures and features user should on the add button to include it in the list of plants 2-user can find for any vegetation by searching in input text block. 3-user has freedom to go through another pages and if required can close the popup by

					clicking on the close button.
4	Both features and structures should be able to have their final size and shape adjusted when added to the garden plan			The purpose of this screen is to display the selected feature or structure on the design plan with the shape and final size adjusted.	1-User should add the feature or structures. 2-then it is displayed on the screen. 3-user can adjust the size of the feature by clicking on the right corner and dragging it down. 4-user also can change its length or height by dragging it to right or down.
5	The application should provide a list of plants and shrubs that are usually available from the Regional Gardens Nursery.			This screen is also crucial part of the application. It provides list of plants and shrubs from the regional garden nursery. And the depending on their details or user need, it can be added to the design plan.	1-User should click on the plants/shrub's icon on footer menu. 2-user has the flexibility to view the plant/shrub details and also navigate through the pagination text option to view another list. 3- User can also search for any required plant or shrub in search input block.

6	Plants that are selected from this list should be able to be placed on the garden plan and show their approximate full-grown size and shape (height and width).			This screen is displaying the plant/shrubs that were selected form the regional nursey list. It displays the fully grown size and shape after resizing the plant and shrub	1-User can drag the or place the plant/shrubs anywhere on the design plan area. 2-user has choice to change its size and width depending on the needs. 3-similarly user can add more plants and shrubs to the design plan then organize them accordingly.
7	Plants that are selected and used in the garden plan should be kept in a list for the user.			The purpose of this screen is interlinked with the garden design plan and its crucial to save the list of plants and the garden plan. User can view the saved plans list and print them accordingly.	1-user should select My plans option in the footer menu and then the list of saved design plans is displayed. 2-user is provided with several option like- to view plan, print plant list, or print design plan. 3-user has the freedom too view the plants used in the garden design plan by clicking on the view plan list.
8	The application should allow the user to print the entire garden plan or any part that is required			The purpose of this screen is to print the complete garden design plan or the part that is only required based on user needs.	1-User can use the print plan button to print entire garden plan. 2- User can use share button to share the garden plan or plant list to social media. 3-user can cancel printing by clicking on the clicking button.

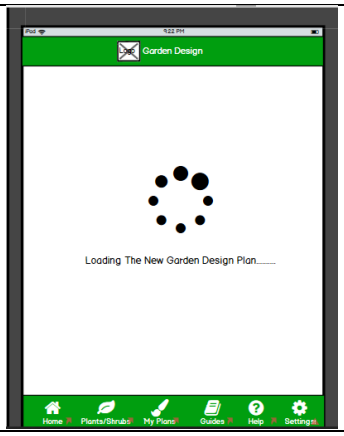
9	The plants list should also be available to print along with the garden plan.			The purpose of these screens is to allow user view the garden design plan and plant list used in the plan. Subsequently user can print the complete plant with the garden plan.	1-User can click the view plan button or print garden plan button to print the entire plan with plants list. 2-User also has freedom to filter by earliest saved plans or oldest plans and print accordingly.

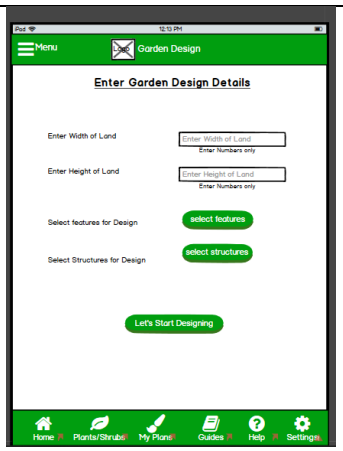
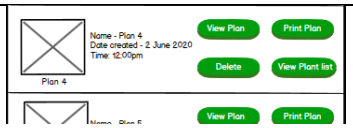
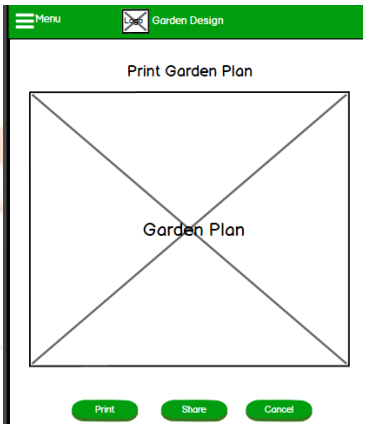
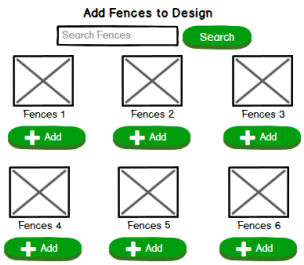
#	Type of Interface Component	Where it is used?	How does it help the users?	Evidence/ Sections of screens
1	Buttons: 1-Search 2-Add 3-Save and Exit 4-Print list, print garden plan and print list 5-Select features and structures	1-In All screens 2-In add shrubs/plants/features/structures screen 3-In Garden plan Designing Screen 4-Print plant list, print garden plan and plant list 5-Enter Garden design details screen.	1-User can search or find any elements/tasks/guides/plants/shrubs via this search button. 2-After searching or by clicking on the respective feature/structure, user can add shrubs/plants/features/structures to the design plan. 3-User can wish to save the design plan or exit the design area 4-User can print the list of plants used for garden design and has freedom to print both garden plan and plant list. 5-User can select the features and structures required for the garden design plan by clicking on any of these buttons subsequently screen pop ups for adding them.	
2	Text input box with "hint text"	Enter garden details screen, help screen, plant /shrub selection screen	Assists user to enter own choices, selections. Improves Usability Standards, user visibility and understandability	
3	Pagination-Numbered	My plans, print plant list, adding features and structures pop up screen, select structures and select features screen	Assists user to navigate with sequential order of pages. Improves flexibility and usability of the system.	
4	Labels	In all screens, used as titles and attribute names in all screens for user understandability.	Helps user to understand what going on the screen and what action can be taken next.	
5	Icons: 1-Menu Icon 2-Exit Icon	All the screens	1-Helps user to view additional options like open file, exit application and auto save.	

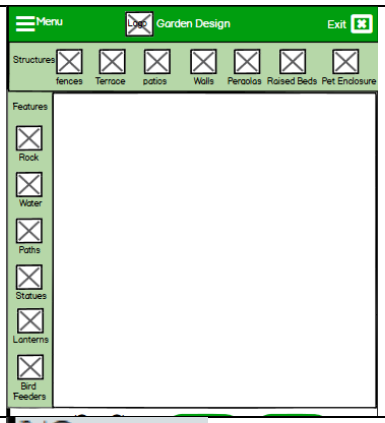
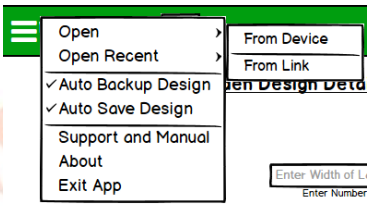
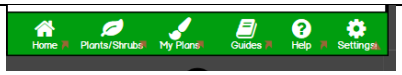
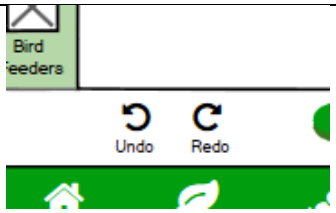
	3-Close Icon	2-Garden design plan screen, adding features/ structures screen. 3-Adding features and structures screen.	2-improves flexibility of the system and user has the control to exit the design garden 3- Improves usability, where user can easily change from one feature or structure to another.	 
6	Pop ups			
7	Bar Graph	Print plant screen, print garden design and plant list screen, adding plants and shrubs pop up screen	Improves understandability, learnability. User can easily recognize the season for each plant or shrub and then add it accordingly to the garden design plan	

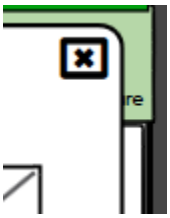
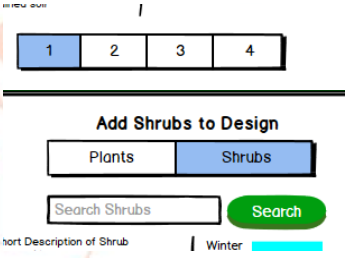
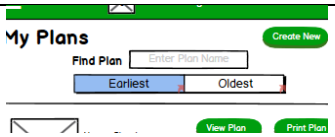
Include all screen components for each page; (10 marks)

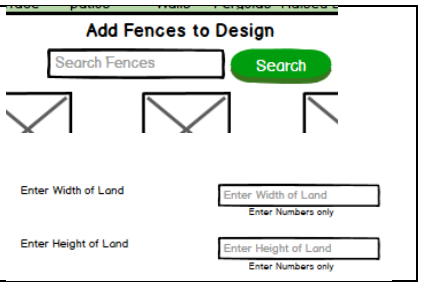
d. Include all navigation components; (10 marks)

#	Type of Interface Component	Where it is used?	How does it help the users?	Evidence/ Sections of screens
1	Progress loader	After user clicks the “let’s start designing” button in Enter garden design details screen.	It helps users inform that the application is completing or loading an action in the background.	

				
2	Image place holders 1-Design Plans list image place holders 2- Garden plan image place holder 3-features and structures image place holders	1-My plans screen 2- Print garden plant screen 3-1 Adding features/structures to the design screen 3-2- Garden design area screen	1-Helps in visibility of system, because user can view the garden plan in medium size image 2- Helps user to view the full designed garden plan. 3-1-Assists users in viewing the features or structures and then they can easily add it to the design screen. 3-2- User can easily visualize the features and structures on the top and left side of the screen. User click to open a pop up then easily add the vegetation to the screen.	  

				
3	List menu selection	Used in all screens in header section.	User will be given different options when click on menu bar. User can choose to check autosave/backup option, user can also exit or open another plan via open option	 
4	Header menu	Header menu is used in all screens	Helps users provide options of interactions with the application interface. It can also significantly improve the process speed of achieving user goal and satisfy user needs .	
5	Footer menu	Footer menu is used in all screens	Helps users provide options of interactions with the application interface. It can also significantly improve the process speed of achieving user goal and satisfy user needs	
6	Icons	Menu icon in All screen, other icons in Garden design plan screen, adding structures, add features, add plants screen, add shrubs to design screen	Icons help users improve communication with content and also trigger a specific action. Improves usability and flexibility	

				  
7	Pagination 1-Numbered Pagination 2-Text Pagination	My plans, print plant list, adding features and structures pop up screen, select structures and select features screen	1-It helps inform user where they are within a screen and click to navigate to another section or screen. 2- Helps organize different contents into screens or pages.	
8	Buttons: 1-Share Button 2-Save and Exit button 2-	1-Print garden design screen, print plant list screen 2-In Garden plan Designing Screen	1-Enables users to share the design plan content or plant list directly to social media accounts. 2-User can wish to save the design plan or exit the design area	
9	Input fields	Enter garden details screen, help screen, plant /shrub selection	Input fields assists users to enter content into the application. Improves interaction and	

		screen, my plans screen	understandability with the application	

Question 2 (40 marks)

You are also required to test your proposed design to check for usability. You are to:

a. Design the usability testing for this proposed system. Your usability test design should include:

1. The goal of your usability tests; (5 marks)

#	**Goals**
1	Successful task completion: Create a scenario where users are able to complete specified tasks successfully.
2	To notice how satisfying the application is to other participants.
3	Speed of performance- To notice how long does it take to perform a specific task.
4	Time to learn- How long does it take for a user to learn the specific task.
5	Subjective Satisfaction: Identifying changes essential to improve user performance and fulfilment

2. What tests you will conduct; (5 marks)

#	**Tests to be conducted**	**Reasons**
Test 1	Remote Evaluation usability testing.	Due to covid-19 its hard to find participants and create a formal lab for testing. Instead remote evaluation testing method is used which is moderated (I will observe the user interaction with the app in real time). - Observer(me) can watch video conference or session from my own location - Users can work in their own familiar environment - This testing method is Cost-Effective.

Test 2	Summative Usability Testing	This testing is used because we need to measure the satisfaction, effectiveness and efficiency of the complete application. -The measures then can be used to establish a usability benchmark -With summative usability testing we can reach our usability goals because we need to validate a number of subjective and objective features like time take to complete specific task, time spent on specific task, error rates when performing a task, and user satisfaction.

Scenario/Problem Statement for Test 2-Summative Usability Testing

Goal/Output	Complete a Garden design plan from creating, adding vegetation and saving design plan.
Inputs	Participants Name- Sonia, Age- 29, Rajiv,27, Ramika, 24, sandeed,24, Neha, 27
Assumptions	Application is opened.
Time on task	Time taken for the participants to finish the task successfully.
Steps	1-Click Next 2-Enter WIDTH and HEIGHT of land 3-Select Features 4-Select structures 5-click let's start designing 6-Enpty Design Plan is Loaded 7-Add required features to the empty design plan 7-Add required structures to design plan 8-place the features in any position as required, 9-change the size of the feature by clicking on x symbol and dragging down. Or by dragging right to increase its length or by dragging down to increase its height. 10- place the structure in any position as required, 11- change the size of the feature by clicking on x symbol and dragging down. Or by dragging right to increase its length or by dragging down to increase its height. 12-Similarly add other features and structures until garden plan expectations are met. 13.click on save to save the design plan to my plan list. 14.view the plan in my plans list
Success Criteria	Design plan is successfully completed and saved to my plans.

Task Level Satisfaction	Evaluate or ask questions of how the participants felt about the overall application experience

3. How you will conduct those tests; (5 marks)

#	**How Test 1 is conducted?**	**How Test 2 is conducted?**
1	This test is conducted on Zoom app.	This test is conducted with 5 in-person participants in a controlled environment.
2	Used the remote request screen-sharing option in zoom app to let the user interact with the prototype.	The participants are provided with the tasks to be completed.
3	Before user or participant starts interacts with the application, I have read the task to be performed loudly.	Defined abort-criteria (example-maximum time) for each task to the participants
4	Used the chat window to communicate and ask question at the end of the session	Task completion time is tracked with time tracker and Interview guidelines, questionaries' are setup for participants.
5	Google form survey is provided to the user at the end of session. The results can then be very conducive for the future analysis.	Pre- test questionnaires and post-test questionnaire are provided to the users after the test 2 session tasks is ended.

4. How you will record and analyze the data from the tests. (5 marks)

#	**How Test 1 results are recorded?**	**How Test 2 results are recorded?**
1	Zoom app video/audio recording is performed.	Observing the 5 participants in-person one by one when interacting with the application.
2	Used both Concrete and Conceptual methods to know how carefully the methods reveals real performance on application interface.	Noted down the user's reactions when interacting with a particular element or completing a task
3	Observing the participant when interacting with the application.	Listening to users when interacting with a particular element or completing a task
4	Listening to user when interacting with a particular element or completing a task	Behavioral and attitudinal data is collected about what participant say and do.
5	Google form survey was completed by the participant at the end of session.	Pre- test questionnaires and post-test questionnaire data is collected by asking questions to the participant at the end of session.
		Debriefing with Participants is done at the end of test 2 session.
	How Test 1 results are analyzed?	**How Test 1 results are analyzed?**

1	Tabularized the qualitative data and quantitative data in Microsoft excel.	Data is tabularized from Pre- test questionnaires results, post-test questionnaires, Behavioral, attitudinal data and notes which was created by observing and listening to the user.
2	The excel file is saved as csv file and imported into tableau software for performing data analysis and to get better insights of what can be improved.	Statistical analysis is performed with collected dependent variables and independent variables.
3	Analyzed the information in tableau focusing on the most-important problems revealed in the test 1 and trying to determine frequency of each task done by the user and where user made mistakes.	Statistical method such as Chi-Square testing is used to examine the statistical significance of the stated results. (this is used because we can meet our time taken to complete task and user satisfaction usability goals.
4	Remote user was provided a survey at the end of session, the answers to these are yes or no. percentage of yes or no is calculated in the excel.	The results after chi-square testing, is reported with confidence intervals.

Summary of test data

The table below displays a summary of the test data.

Participant	**Task Completion**	**Errors**	**Time on Task**	**Satisfaction***
1	1(Success)	3	232 sec	3.58
2	1(Success)	5	289 sec	4.76
3	1(Success)	3	169 sec	3.21
4	0(Failed)	10	191 sec	2.91
5	1(Success)	2	168 sec	4.59

b. Justify your usability tests with reference to the principles of usability testing (10 Marks);

#	**Justification on Test 1**	**Justification on Test 2?**
1	Help and Documentation: The remote user when starts interacting with the application,	Match between system and real world- This is interlinked with user satisfaction. When the

	user might be stuck at some point. So, for this reason help icon in the footer menu might provide some assistance to resolve the problem.	application or task are made in a user language or real-world way, then the satisfaction rate might improve.
2	Recognition over recall: Observing how the remote user uses the app is a helpful way of finding what things user can recognize easily and recall.	Flexibility and efficiency of use: The participants attitude and behavior while interacting with the app can traced by the good design and flexibility and efficiency of use.
3	User control and freedom: this principle helped to find how the user has freedom and control over the interface and interaction with the application. Notes were taken down when the remote user started interacting with the application form beginning to end.	Aesthetic and minimalist design: the design is made minimalistic and simple. Only relevant information and interface elements are included in the application.
4	Visibility of the system: With this principle in mind, the test 1 also has data recorded. The data consists of notes, and images where the user call to action is quick or slow, and images of screen where the action was slow and quick.	Recognition rather than recall: this principle is linked with the time taken to complete a task. Because, if user recognition and recall is quick in the application then then time taken to completed a task will be low.
5	Error Prevention: Errors can occur in any usability testing. This test 1 also has gather the data where user make few mistakes. The screen shots have been taken of the particular page and re consideration of another design decision was done for those screens.	Help users recognize, diagnose, and recover from errors: when the user is stuck at some stage or cannot move forward, this principle can be conducive. Participants interaction was high and only 3 were stuck in designing and selecting the features and structures screen.

c. Explain how your usability tests will lead to improvements in the interface (10 marks).

#	**Expected improvements from Test 1?**	**Expected improvements from Test 2?**
1	User control and freedom: One of the notes taken while observing user was that, it took some time to add the features and structures to the design plan. This selection was separately included in another page. Improvement- the selection screen has changed as pop up. When user clicks on the button a shadowed window pop ups and then user can select the features or structures.	Match between system and real world- when the users were interacting with the prototype, the click to action speed was low in 4 participants. Then based on the statistical analysis, it was a minor issue. The color of the application was brown. Improvement- changed the color from to green. This color also matches with the real-world nature and lets user think that user is really in the garden. It also helps improve user satisfaction
2	Help and Documentation: The remote user did was stuck to find the help and documentation, which was included in the guides section of footer.	Flexibility and efficiency of use: The participants did have the option to close or navigate through each of the structure or feature. This might create confusion and users may exit the application.

	Improvement- help icon is included in the footer menu. This also improves usability, flexibility and efficiency.	Improvement- Feature and structure are displayed on top and left side of design playground. This improves user satisfaction and task completion rate.
3	Consistency and standard: buttons were of blue color. This also made the performance of user or click to action a slow. Improvement- Changed all the buttons from blue to green.	Error prevention: 3 users made minor errors while using the application. 2 of them exited the application directly. Improvement-Exit button with warning is include, where user can confirm to exit the design playground or the application.
4	Recognition over recall: User was not really able to recall the previous selected feature or structure and also the created plans Improvement- User can now easily recognize the features which are included to the left side of the screen and structures to the right side of the screen. Also, the created plants are included in my plan screen. The icon is integrated in footer menu.	Help users recognize, diagnose, and recover from errors: only 1 user had selected the help icon in the footer menu when user got stuck. Improvement- Guides are included the footer menu, where user can learn about the garden design, application and various things. then there are less chances of error causing.
5	Error Prevention: In the initial stages, user had the freedom to enter land details and select vegetation. But the remote user only selected features and did not select the structures. Then user directly has done few clicks on let's start designing button to start the design plan. Improvement- validation is done when the user did not select the features or structures. If added then tick mark is shown otherwise red cross mark is show. And user cannot move or navigate forward until features and structures are selected and tick marked.	Recognition rather than recall: Few changes were made in the design playground where users can easily remember the plans, and interface elements. Improvement-It also makes the application highly effective and efficient