Non-Functional Requirements Checklist

Beverage Booker

Version Information

Version	Date	Description	Author
1.0	12/04/20	First version of the vision document for Beverage Booker - Submitted for LCOM.	Jacob Kennedy
2.0	21/06/20	Appended document to remove reference to Table Booking and Event Booking as they no longer fit the scope of the project. Fixed incorrect closing times to represent a more realistic cafe. Submitted for LCAM.	Jacob Kennedy
3.0	16/07/20	Appended document to remove reference to many use cases to more align the information in this document with the current scope of the project. Submitted for LCAM resubmission.	Jacob Kennedy
4.0	29/10/20	Appended document to reflect what the project has become rather than the aspirations of it.	Jacob Kennedy

Priority Key:

Smaller number = higher priority.

Larger number = lower priority.

NFR	Question	Answer	Benefit	Impact Costs	Strategy of Implementation	Priority
Security	Is user information stored? Are there standards in passwords? Is money involved in the system? Are there any levels of authority required?	Staff Application uses Staff ID to login. This data will need to be protected through the use of a private database. Information for customers is also stored which will include: email, password and name - all this information will require a private database and for password encryption. All users will require encryption when it comes to payment - this is handled by Stripe so our application doesn't require anything like that. There will be standards of passwords so that a password is not easily guessed. This will be enforced through the common 8 characters minimum. Money is involved however we have implemented Stripe so we don't	Protects users personal information. Ensures users have secure passwords. Ensures only authorised people can access specific things on the system.	Usability is impaired as levels of access will have to be implemented making it harder to use, adding extra steps in front of ordering (user sign in takes a toll on usability as well as user registration). Implementation will take longer, and complexity will increase. Encryption, login, database for user information, payment required for iPage.	Encryption of personal data, like password. They system disallows certain things in password entry e.g. < 8 characters long. Authorisation through restriction of access to certain areas. E.g. a customer will not be able to update the menu items however a cafe manager can.	3/12

		directly interact with user's information. There are levels of access present in both apps; the customer app in which a customer can only access their account and in the staff so only the manager can edit the menu, inventory and also add/delete staff accounts.				

NFR	Question	Answer	Benefit	Impact Costs	Strategy of Implementation	Priority
Audit	Do orders need to be tracked? What aspects of the order need to be tracked?	Orders will require tracking so the customer can be given the rough estimate of when it will be ready. The order status will also be updated e.g. completeness of order and its items. Transactions also need to be tracked in those orders. The aspects that should be tracked are time or preperation, location, date, account, order number, payment status.	Ability to know what user ordered what. able to keep track of history of transactions. Ability to update member accounts with the order e.g. the push notification they recieve when order is completed. Allows for authenticity of order by having a user attached to it.	Increased data storage requirements. Implementation will take longer, and complexity will increase. Data will have to be stored, managed and interacted with.	Update orders and a checker on the customer app so the notification can go through. Add ability to see order and status and other information on staff application. Databases will have to be used for this.	5/12

NFR	Question	Answer	Benefit	Impact Costs	Strategy of Implementation	Priority
Performance	Is there any response time requirement after user input? Is there a start-up or shutdown time?	For the application, it should take no longer than 2 seconds for the user to cycle to the next page after completing that field. E.g. On the customer app the user finalises what their coffee will have in it and presses add to cart and 2 seconds they are looking at food items they can add to their order and in their cart can be seen the item they just added. For other things such as updating member's account information they are lower priority as the user does not see this happening and can take longer, however 3 seconds is desirable - our application can do them as soon as the button is pressed. Start-up time is 7 AM. Shutdown time is 4 PM. The system is not required to be on permanently as the cafe is not preparing orders at all hours of the day.	Increased ease of use and efficiency while creating an order. Decrease response time while performing tasks. Increase in usability overall. Utilise café opening and closing times.	Implementation will take longer, and complexity will increase. Maintaining the 2 second rule will be a challenge throughout the duration of development.	Maintain efficient code. (Minimise complexity.) Maximise communication between system and client for timely system response to user input.	8/12

NFR	Question	Answer	Benefit	Impact Costs	Strategy of Implementation	Priority
Capacity	How many accounts will the system support? How much data does the system need to store? How far back would information be kept?	As this is based in a university café it is safe to say that it is possible that 3,000 or more people could create accounts for the café. Therefore, a database will require enough space to support that kind of number. The system will have to store: email, password and name. Orders and its information, menu items and staff information. It is safe to say that information would have to be kept for a maximum of 8 years.	Having data in one place allows for easy access to information that is needed. Having more storage then needed allows for lenience of growth in the amount of people having their data saved. History of orders and other information. Recovery data.	Paying for databases and storage. Cost can vary depending on the size of storage device. Implementation will take longer, and complexity will increase. Implementing databases and storage systems.	Buying a storage device that can be expanded and may itself be larger than the capacity needed allows for safe growth with no gradual increase in cost. Due to the smaller nature of our database it can hold much more as it only holds text and numbers.	9/12

NFR	Question	Answer	Benefit	Impact Costs	Strategy of Implementation	Priority
Availability	What are the opening hours of the café? Is 24/7 availability required? Is there a difference between the availability within the mobile app?	The opening hours of the café will be assumed to be 7 AM to 4 PM (as per high traffic on campus). Highly unlikely it is open on weekends. The system does not need to be available until when the café is open to when it is shut. The staff app should be available 24/7 as this is where an administrator will update the menu. Whereas the customer app is what the customers will use to order therefore this mobile platform will only need to be available during opening hours.	This will allow users to access the system when the café opens. Allows parts of the system to possibly be shut off during closed times. Allows users with administrative access to update and access the app anytime of the day.	Implementation will take longer, and complexity will increase. Creation of two separate applications; one for customer and the other for staff.	Creating a staff app that allows staff to access at any point to update menu items, order, inventory and staff accounts. Create a customer app to allow access during opening hours.	2/12

NFR	Question	Answer	Benefit	Impact Costs	Strategy of Implementation	Priority
Reliability	How often can the system go down? How long can it be down? Can a part of the system go down without taking the rest of it down?	Realistically the system should be able to go down no more than 3 times a year. The times it goes down should coincide with the café being closed and late at night or early in the morning (low traffic hours). For maintenance of the system it should only be down for no more than 20 mins. This should be done out of hours while the café is closed. Due to the system being split in 2 (staff and customer apps) if one goes down the other should stay up. e.g. the staff app going off shouldn't affect the customer and vice versa.	Not having much downtime increases user' reliability in the system. Allows for updating during downtime. Reliable even if a component is taken down.	Downtime can cause loss of business if occurring during peak hours. Could take more time implementing and become more complex to maintain components autonomy.	Maintain a localised system to ensure independence from other branches. Utilise the café being closed to update or take down the system.	4/12

NFR	Question	Answer	Benefit	Impact Costs	Strategy of Implementation	Priority
Integrity	Is it important to ensure users enter data correctly into the system? Is it important to control duplicate members?	It is important that customers enter data correctly because many things such as logging in will rely on customers entering the correct email and password. It is also important that an administrator enters their information correctly to be able to access the staff app to update information such as orders and menu items. It is important to control duplicate members as it may cause problems in the system in that if the same email is used it could send the email twice or not at all. So, an email should only be able to be used once for a customer account.	Saves space in storage as no duplicates can be created. Ensures all data entered is valid and correct.	Implementation will take longer, and complexity will increase. Making sure the apps can deal with duplicates, verification mechanisms for logins and placing orders.	A checker that makes sure data entered by the customer is valid and correct. This will include emails and passwords. A reader that checks all existing emails tethered to customer accounts to make sure there are no duplicate emails being used.	6/12

NFR	Question	Answer	Benefit	Impact Costs	Strategy of Implementation	Priority
Recovery	What is the recovery method in case of a crash? How is retained data to be recovered? How often is data backed-up? How long will it take to restore a previous version of the system?	The system will recover using stored back-ups. Retained data is recovered through these stored back-ups created by iPage. This data should consistently be backed-up as it is required to maintain current data. Restoring a previous version of the system should take no longer then 5-10 mins.	What would otherwise be devastating to the system is far less so where the system is able to restore to a previous version, losing no data.	It will take time for the system to recover. Implementation will take longer, and complexity will increase. A recovery system will have to be created to support the system. Could affect performance having the system constantly backing up - though iPage is good for it as it is purely a hosting website.	Utilise back-up files created by iPage if required. On both apps no information is stored locally thus nothing on local ends needs to be backed up just the database.	10/12

NFR	Question	Answer	Benefit	Impact Costs	Strategy of Implementation	Priority
Compatibility	What can it run on (be accessed by)?	The customer app should be able to run on modern Android mobile phones, also the staff app should be able to run on modern Android Tablets.	Customers can access the system via mobile. Staff can access the system via tablets.	Implementation will take longer, and complexity will increase. Supports mobile and tablet access on two different applications.	Create a mobile app that can be accessed via different versions of phone. Create an app that can be accessed via different version of Android Tablets.	7/12

NFR	Question	Answer	Benefit	Impact Costs	Strategy of Implementation	Priority
Maintainability	Are there any guidelines that are needed to be followed in collecting user data? Is maintenance carried out by 3rd parties? What is the rate of maintenance?	While collecting data from the user such as email and passwords the system must adhere to privacy laws set out by the country as well as follow google play guidelines. Maintenance will be carried out by the development team. Maintenance will be conducted as required.	The system adheres to all laws and google play store guidelines thus there will be no problems in the future. Through maintenance any updates to privacy laws and such can be adhered to by the system. Also allows the system to consistently be updated in stability.	Implementation will take longer, and complexity will increase. Research into privacy laws and google play guidelines will have to be conducted by the development team. Having maintenance done throughout its deployment will come at a monetary cost.	Ensure that the system is in compliance of Australia privacy laws in collection of user information. Implement a maintenance mechanism. Handled mostly by version control and google play in which updates can be done.	11/12

NFR	Question	Answer	Benefit	Impact Costs	Strategy of Implementation	Priority
Usability	What usability requirements are there? Do members have different requirements than normal users? Who is the intended user?	The apps should be simplistic and easy to use. Allowing users using mobile to skip the login process by selecting the guest option. the mobile app should be able to utilise touchscreens. It should be easy for users to create an account via an email and enter a password and email. Intended users are on campus university students.	Usability of the apps are increased for all users. Increases both apps efficiency.	Implementation will take longer, and complexity will increase. Must keep UI and other aspects very simple whilst also managing to implement all intended aspects.	Consistency in interactions and terminology on the mobile app.	1/12

NFR	Question	Answer	Benefit	Impact Costs	Strategy of Implementation	Priority
Documentation	Is a user manual required for this system?	A video recording of how to operate the customer application has been created. A user manual for the staff application has been created	Allows users to understand how to operate and use all aspects of the system and to troubleshoot if they are experiencing difficulties.	Implementation will take longer, and complexity will increase. Creating a simple user manual to help explain all aspects of the system for the staff app as well as record a video to help users if needed.	Create a user manual to help those staff that are having trouble using the staff app with easy to follow steps and how the system operates. Create a video to guide a customer through the app to help them understand how to operate certain things. It should be available for the mobile platform. E.g. The customer app utilises a “do you need help” button in areas that could be problematic.	12/12

Prioritisation of NFRs

Priority 1 - Usability

Beverage Booker is two applications implemented to give a university cafe an online presence that will allow patrons to add/delete items from a cart, pay for their order, receive an estimated time of preparation, create an account, and enter an email and password or for staff to enter a staff ID in the staff application, update orders, update staff members, update inventory or update deliveries. The apps should be designed so that any customer or staff member, regardless of technical capabilities, can use the applications and find it simple and easy to use. This means that any UI a user interacts with on the apps should be very simple with very few buttons and allows those users having difficulty using the apps to open a user manual if they require assistance. If the apps are not usable it will discourage people from using the apps due to their poor experience.

Priority 2 - Availability

For the apps to work properly it must be available. If it is not available it can prevent orders from going through, payment mechanisms to fail, and login failures. Users may experience delays or poor services and cause them to not use the apps anymore. While the apps are available the user will be able to create their accounts, place orders, pay for those orders, and be given an estimated amount of time for their order to be ready.

Priority 3 - Security

Information regarding users will be collected and saved which should be handled according to the relevant privacy policies and laws. Information will have a level of access to protect users information and make sure no one can access what they are not supposed to e.g. customer 1 cannot see the account information as customer 2 and neither can update the menu items on the app but manager 1 can. Without security, a customer's sensitive information could be a risk. The use of a private database hosted on iPage will assist in bolstering security.

Priority 4 - Reliability

The system is to coincide with face-to-face orders. If the system is not reliable enough then users' trust in it will deteriorate and result in the system not being used (meaning the time spent developing it is voided) and could also lead to loss of customers or efficiency from the staff.

Priority 5 - Audit

Orders are the items that will be processed through the system and tether to names and accounts, therefore they need to be tracked as users will need to know the status of said order and they also should be tracked due to the system utilisation of payment. Transactions are also crucial to track.

Priority 6 - Integrity

Data integrity is important because some data entered by the user will be very sensitive such as payment info, emails, password and other things therefore the system can check to make sure all data entered is correct and valid this will require communication with the hosted database. The system can prevent the creation of duplicate accounts to manage the integrity of the data stored. If integrity isn't maintained it could cause problems to accounts, orders and other things and user experience and could cause users to lose interest in the apps and could cost the cafe business.

Priority 7 - Compatibility

Compatibility is important as the system should be compatible with mobile apps as they are the target platforms for said system. Compatibility should be looked at through versions of systems too e.g. modern android version. If compatibility isn't covered then there can be problems where a mobile will not/cannot load certain assets of the system e.g. images. Also compatibility on mobile should be covered because if the system isn't made to work on current versions of android it could lead to problems with unexpected crashes, data not being sent (failure to make accounts or place order) and can impact the systems trustworthiness negatively.

Priority 8 - Performance

Performance is important as the apps will have to perform well if they are to be used consistently and efficiently. If the apps are slow and unresponsive it can negatively impact the usability and efficiency of the system deterring people from using it.

Priority 9 - Capacity

The system should meet certain aspects of capacity to run effectively. If it does not meet the requirements then it can cause the apps to run slow if too many people are accessing it at once or even cause it to crash, causing people to not be able to use it potentially losing business as people may be deterred from using it.

Priority 10 - Recovery

Recovery is important because if any critical defects occur it could mean total loss of data, using back ups means that even if the system does go down it is able to be reverted to a previously functional state meaning that data loss will be very minimal and also that the system won't be down for long. iPage is the host of both the applications database and supports back ups.

Priority 11 - Maintainability

For maintainability to be effective all guidelines and laws should be considered and accommodated. This is especially important as the system is intended to collect user data e.g. email and password. failure to adhere to laws and policies can cause legal issues and possibly legal action toward the business the apps are a part of.

Priority 12 - Documentation

Documentation is important as there may be users having issues. Thus a user manual should be created to assist those having difficulties operating the staff application and there is a video to assist customers with difficulties involved with the customer application. Failure to

make a user manual or help video can cause people that are having issues to not know how to use the system and thus lose interest in the applications.