

# FARMING FUN - A FARMING SIMULATION GAME

## 0. TEAM MEMBERS

- 1 Nguyen Van Thanh Tung – 20190090
- 2 Nguyen Vu Thien Trang 20194459
- 3 Chu Hoang Duong 20194429
- 4 Nguyen Huy Hoang 20194433
- 5 Dang Thanh Lam 20194442
- 6 Nguyen Quang Tung 20194462

## 1. EXECUTIVE SUMMARY

*We are going to develop a game called “Farming Fun”. Our clients are video games publishers, represented here by expert Trinh Thanh Trung. Mr. Trung has a lot of experience as a business director of video game publishing company ABC, so he will act as our main client. Our users are players who need entertainment with video games. Mr.Trung will also act as a real player, giving us feedback through his real experiences with this Farming Fun game. The game will allow users to access and perform tasks and manipulations while playing. We have the goal of commercializing this game after fully developing the features and going through the testing phase (beta, open beta).*

## 2. PRELIMINARY REQUIREMENTS ANALYSIS

### 2.1. APPLICATION OVERVIEW

#### **Objectives**

*The game is designed to meet people’s entertaining purposes. In detail, players are those who are interested in farming, domestic animals, crop plants and find joy in building a simulated farm.*

#### **Business objectives**

*The project aims to develop a complete farm simulator for the client who, in this case, are game publishers. This game needs to meet clients’ requirements and attract a large number of players, bringing profits to the enterprise as well as the development team (revenue will be due to the agreement between two parties). Besides, this creates a premise for our development team to build a reputation with other publishers and in the community. A prototype of the game will be developed, tested, and deployed in time for this semester of 20212.*

#### **User roles and responsibilities**

*Player: they can download the application directly to their personal computers, install and launch the game. Detailed instructions, operations, entertainment tasks are all included to help players adapt quickly to the game.*

### **Interacting with other systems**

*Currently, the system functions independently without interacting with any other systems. However, in the future, it is possible that it will be integrated with clients' game ecosystem according to their requests.*

### **Production rollout considerations**

*Design and development of all features will be completed after phases within 3 months before the game is put to test and released. During these stages, we will have specific discussions and report to your representative, Mr. Trinh Thanh Trung.*

## **2.2. FUNCTIONAL REQUIREMENTS**

### **Description**

*Build a farm simulation system.*

*The application will simulate a farm with livestock such as cows, dogs, chickens, ducks, fish,...*

*Each domestic animal has health states such as hunger, thirst, which will change over time.*

*When healthy, the pets' activities will be based on a certain schedule (sleep, play, eat, nap,...). When hungry or thirsty, this schedule will be interfered with. If this condition continues for a long time, the animal may die.*

*Users can provide corresponding food and water for each type of animal.*

### **Statement of functionality**

- *Simulate the domestic animals' activities*
- *The simulation program has a graphic user interface*
- *Provide two modes:*
  - *Real-time simulation*
  - *Emulation (allow users to enter arbitrary time information)*
- *Calculate the amount of food needed to maintain the farm*

### **Security**

- *For players (users): provide players with a gaming license or a gaming account.*
- *For game publishers (clients): we will coordinate with publishers to deploy copyright security methods, and avoid the appearance of rampant crack versions on the market.*

*This resolution completely depends on the agreement between us and your company. When both parties agree to shake hands to secure the source code and game copyright after the game is released.*

### **Optional features**

- *Role-playing game character development*
- *Skin upgrade for characters, animals and crops*
- *Take the pets for a walk*
- *Animal breeding feature*
- *Features to buy/sell agricultural products*

*Additional features suggested here may be added if we reach an agreement with your company. In addition, new features in the game will be considered in the process of discussing and working between the two sides.*

### **3. PROCESS TO BE FOLLOWED**

*For this project, the team has decided to follow an iterative refinement approach that involves beginning with a user interface mockup and gradually adding functionality until all of the client's requirements are met. Client's requirements here include requirements from the company and Mr. Trinh Thanh Trung.*

*We chose this process since the user interface is one of the key factors for the success of a video game. This user interface needs to be simple and easy to use, but also playful and entertaining to attract users. By following the iterative refinement method, our team can create a user interface mock-up early and make modifications based on the responses of clients. If time allows, the team will release beta, open beta versions to collect real users feedback and adjust the user interface as needed.*

#### **Process Outline**

*The development process will be divided into 3 parts, each of which ends with a milestone. At each milestone, our team will present the latest version of the software to the client for evaluation. Although the software will not be complete in the early stage, it will provide the customer with a rough estimation of the final product's functionalities.*

#### **First Iteration: Requirements Document (Until 30/05/2022)**

*Our team will prepare a requirement document detailing the client's requirements for the software. The customer will categorize these requirements into required, desired, and optional features. Once the document is approved by the client, our team will design the initial user interface for the client to review. This interface might be simple and might not include all the expected functionalities.*

#### **Second Iteration: Design Document and Presentation (Until 20/06/2022)**

*Our team will prepare a document describing both the system design and the source code behind it. All the hardware and software requirements from user devices will be specified. Details about software design will cover all internal functionalities so that the client can maintain and modify the final product in the future.*

*Based on feedback from customers regarding the first iteration, our team will modify the user interface as needed. Again, this modification might not include all the required functionalities, but all the features needed for this stage of development will be provided.*

#### **Third iteration: Final Testing Period (Until 04/07/2022)**

*One week before the final presentation, our team will provide the latest version of the software with all required functionalities to the client for testing the product with real users and data. At this point, any change will only include small details.*

#### **Final Documentation and Presentation**

*Documentation of the final version of the product will be provided to the client so that the software can be maintained and extended. It will include information on all required features, along with any desired and optional features that have been implemented in the system. We will also provide a demonstration of the system and some training to help the client understand how the user interface is intended to be used.*

#### **Final System**

*The final system will include all features that the team and the client have agreed are required. Based on development progress heretofore, the final system may also include any functionality that the client has also determined as desired and/or optional.*

### **4. SUGGESTED DELIVERABLES**

#### **Periodic Status Reports**

*Throughout the software development process, periodic reports will be written and presented to the client to maintain process visibility and enhance the team's responsiveness to the client's needs. The team understands that the client will wish to comment and respond to the development progress. In turn, the team will strive to continually adjust and target processes and progress to the client's needs. Periodic status reports will detail the feasibility of the project, its exact requirements, its design, and ultimately, its final form and implementation. These will be written documents that are presented to the client and any other individuals the client identifies*

#### **Periodic Presentations**

*Accompanying requirements, design, and final reports will be periodic presentations where the team will demonstrate different aspects of the software system in development. The team's iterative approach to software design means that different presentations may concentrate on specific areas of the client's needs. For example, the user interface may dominate particular presentations. These presentations are designed to give the client maximum understanding of how their needs are being addressed in the actual product. Feedback will be critical to these presentations, so that the team may use the client's comments to understand completely how the system meets the client's needs.*

#### **Computerized, Web-based System for Reference Statistics**

*This system will be the core deliverable for the client. It will consist of a coded, app-based tool. The client has identified five major functionalities that this system will need to deliver:*

- (a) Status Simulation – The system will simulate pets' status.*
- (b) Time Settings – The system will allow users to set the current time and longevity in their own way.*
- (c) Predictive Maintenance – The system will calculate the food needed to maintain the farm*

- (d) *Users Security* – The system will provide users with a gaming license or a gaming account.
- (e) *System Backups* – The system will automatically back itself up. Additionally, back-doors to the system will be provided for future maintenance.

*The deliverable system will consist of a graphical user interface front-end for assistants to utilize the system's functions and a centralized back-end central data repository component where the actual data and program the user interacts with will be stored. Therefore, the system will span app-based interactions and code running on the library server.*

#### **Good Faith Requirements Agreement**

*After the project requirements have been discussed and reviewed with the client, a requirements agreement will be presented to the client to clarify exactly what the project intends to accomplish. The agreement will explicitly spell out which features and objectives the team intends to deliver.*

#### **Documentation for Use and Mechanics**

*The client will be provided documentation both explaining how to use our system and describing its underlying mechanics. The client has expressed interest in gaining familiarity with the system, and the documentation will be useful for reference needs*

#### **Demonstration and Client Training**

*In addition to documentation, the client has requested training for their staff to use the system. The team will satisfy this need by providing demonstrations of the system (in various stages of completion) throughout the semester (in coordination with our periodic presentations) and by allocating time after the final system is finished to train the clients in the use of our system. The demonstration will consist of performing routine tasks that have been identified by the client, and the training will either consist of group instruction led by team members or one-on-one training with the client*

## **5. TECHNICAL FEASIBILITY**

### **5.1 TIME SYNCHRONIZATION AND SIMULATION**

*Synchronization and simulation is necessary. In addition, the system automatically simulates the above mentioned features of the animals without opening the game interface.*

### **5.2 DATA STORAGE**

*After accessing, users can continue to play with the current game state or play from the beginning. Therefore, the system needs to automatically store the current data for the next use of users. The data will be saved directly on the player's device .*

### **5.3 DATA SYNCHRONIZATION**

*The system will be updated regularly without deleting irrelevant data.*

## 5.4 AUTOMATIC NOTIFICATIONS

*The system will send notifications to the user about the system, update, activities, ...*

## 5.5 SECURITY

*Confidentiality is maintained to ensure the integrity of the data, although beneficial or harmful modification is not expected.*

*It should be noted that the final system delivered to the customer may be different from the technically viable system described in this template feasibility report. Focus on future system requirements will be implemented and an optimized architecture will be adopted.*

## 6. VISIBILITY

*Our team always tries to optimize the system visibility and the development process. This will ensure that the project is being developed in accordance with the client's specifications. Any deviations from those specifications can also be detected early and corrected through customer feedback.*

### 6.1 COMMUNICATION

*Face-to-face meetings, phone and email will be the primary form of open communication to keep clients updated on project progress. Regular meetings will be held with the client to discuss progress and for two-way feedback. The group will also meet in plenary at least once a week to make sure all members understand and understand their roles and responsibilities.*

### 6.2 INTERMEDIATE DELIVERABLES AND PRESENTATIONS

*Live demonstrations: Development team will present progress through presentations at the client's premises and at monthly presentations corresponding to each major phase of the project.*

*Presentations: A presentation of the design layout of the screens, reports and demonstrations of working and system functions will be shown to the client to update the team's progress.*

*Reports: Customers will also be provided with copies of the documentation, which records the details at each stage of the software development process. These progress reports will also allow them to clearly perceive the details of the project from their point of view.*

## 7. RISK ANALYSIS

*The team will analyze the risks that they may encounter in working. As with any project, it is possible to take risks. Three main types of risk have been identified: time, resource, and functional.*

### 7.1 TIME RISK.

*Since the course requirements state that the project must be completed within one semester, any extension is impossible.*

*This leads to the risk that the system may not be completed with the full functionality the customer wants within a given time frame of a semester.*

*In this case, there is also a second risk of the system being delayed in deployment if the customer chooses to wait until the system is fully operational.*

## **7.2 RESOURCE RISK**

*Resource risk relates to the technologies the team has available to use. Due to cost and other external constraints, the team may not have the necessary or best resources to complete parts of the system.*

*For example, a resource identified as team members will need laptops running the Windows operating system. In addition, there are inherent risks in resources, such as software and hardware, that the team decides to use.*

*To keep costs to a minimum, the team is looking at free, open-source software. The hardware to implement the actual system also depends on the hardware on which the library is available.*

*Resource-borne risks include hardware failure, system crash, bugs in code, etc., which can cause accidental data loss.*

## **7.3. FUNCTIONAL RISKS**

*Functional risk is related to how the system works.*

*Issues that fall under this category include developing user interfaces that are not user-friendly or unpopular with customers or producing functions with limited sustainability.*

*The most considerable risk comes from developing a system that doesn't do what the customer wants.*

*Of the three types of risk, the functional risk is the easiest to reduce because functional constraints are more flexible than time or resource constraints.*

*However, functional risk reduction is often accomplished by omitting specific parts and/or functions of the system, as reducing functionality naturally reduces its associated risks.*

*The team wanted to avoid doing this as much as possible. Customers must be aware that this can be done to deliver the system by the due date at the end of the semester.*

## **7.4. RISK MANAGEMENT / MITIGATION**

*Having outlined the primary risks associated with this project above, the team prepared to take preventive actions to reduce these risks.*

*Principal planning is the development and practice of sound management strategies. As discussed in the previous sections, the team intends to divide the project into a series of iterative phases that have specific milestones.*

*These milestones will provide project visibility and allow clients to see the team's progress at each stage.*

*Multiple simulations will allow customers to assess usability, increase familiarity with the system, and shorten the time.*

*Regular communication and feedback from the customer are also essential for the customer to be satisfied with the user interface and functionality.*

*Our team will also continuously review their progress and revise goals to deliver a sound system on time to the customer.*

## **8. BUSINESS CONSIDERATIONS**

### **Trade secrets and Sensitive Information**

*As far as the team could gather from the initial requirements, there are no trade secrets or sensitive information that will be dealt with in the implementation of our system. Since much of the information deals with user licenses to play the game, the information is not of a sensitive nature that will have to be heavily guarded through several security measures. The system will require a pair of username and password or activating code to start the game installation.*

### **Copyrights and Trademark**

*The DS64 team consists of the following members: Nguyen Van Thanh Tung, Chu Hoang Duong, Nguyen Huy Hoang, Nguyen Quang Tung, Nguyen Vu Thien Trang, Dang Thanh Lam, hereafter referred to as 'the team'. The team will give a limited license to Mr. Trinh Thanh Trung, hereafter referred to as "the client". This limited license will allow the client to use and modify the software system for an unlimited period of time. The team will not be responsible for any modifications after the software system is delivered, but will help with any questions or concerns of the client as time and circumstances permit. The team reserves the right to be able to demo the software system to prospective employers and showcase the software system as a work created by each team member.*

*Since the team does not plan to trademark any names in relation to the software system, trademarks are not foreseen as being an issue.*

## **9. CONCLUSION**

*The group will give a conclusion and general feasibility of the group's project.*

*From the feasibility study results, our team found that the FARMING FUN farm simulation project was feasible in terms of technique, team members' skills, and time. With a time limit of one semester, the team believed that the project's scope was manageable and that the client's requirements could be satisfactorily met upon completion of the system. Team members are also skilled enough to implement the system and are familiar with the hardware and software used in this project. The conclusion of the feasibility report is to continue with this software development project.*