**A1. Letter of Transmittal**

Dear Mr. Levin,

The act of playing a game is defined as a voluntary activity or occupation carried out within specific fixed boundaries of time and space, in accordance with rules that are freely accepted but binding, accompanied by tension, joy, and the awareness that it differs from everyday life.(Huizinga, 2016) Every video game seeks to elicit from its players a certain kind of behavior and set of feelings from their target customer. Thus, the integration of emotion detection and video games can conduct user’s emotion in real time, which can benefit the product research and development. Due to the fierce competition in gaming industry, it is essential to keep up with the latest technology and customer feedbacks.

The proposed software demonstrates the use of emotion detection in real time. By using facial expression recognition, it is possible to identify the feelings a user is experiencing while playing. Such customer feedback can be obtained by examining a live stream and identifying facial expressions. Your company will be able to understand the target customer and utilize their feedbacks, which can generate constructive result and further consummate the product. The emotion detection technology will be able generate greater revenue in the long run with the high-quality products and customer engagement.

This project funding requires approximately $313,000, which allocated to labors, equipment, supplemental data, and resources. My team involves industry experts and management experience. With my programming and management experience, I can lead the team effectively and deliver the proposed software within the scope.

I am excited to hearing from you with this proposed project. Please do not hesitate and reach out me if you have any question.

Sincerely,

Sin Lan Cheong

Project lead

-- Create a letter of transmittal (a single-page cover letter) to the client’s senior leadership (non-technical background). This needs to be brief and concise addressing the following:

•  summary of the problem

•  recommendation of the solution (data product and type)

•  description of how the proposed solution benefits the client

•  objectives of the project

•  total funding requirement

•  expertise of developer relevant to the solution

Be sure to include all elements typically found in a business letter including a subject line, date, inside address, greeting, complimentary close, and signature.

**2. Project Recommendation** – This section needs to convince senior, non-technical executives to implement your data application to meet their business need(s). Be brief (around 2 pages) with minimal technical jargon (or explanations if jargon or technical terms are used) but include sufficient material to explain the application. Include each of the following subtopics and *write in the future tense*:

**Problem Summary** –

When playing a game, emotions greatly influence the player's choices and decisions. Through verbal and non-verbal clues, businesses can use emotion recognition to better understand the thoughts and behaviors of their clients. The implementation of facial expression recognition may help to identify the feelings a user is experiencing in the moment. Businesses can obtain player’s emotion in real time with their consents.

What problem will the application solve? Describe the setting so it’s clear how the solution meets the client’s need(s). This is a scope statement complete with what will be included.

**Application Benefits** – Human communication relies heavily on facial expressions to grasp one’s intention. Various studies have shown that verbal and nonverbal components together make about one-third of human communication. Facial expressions are one of the primary information carriers in interpersonal communication among nonverbal cues. Businesses can utilize facial expression to better understand their clients and enhances personalization experience. Besides, it will greatly benefit game developments along with the user’s feedbacks.

A description of how the application benefits the client and how the application will support a decision-making process in the context of the business need. Where does the product fit in filling an identified gap?

**Application Description** – Face detection is the initial stage in the emotion detection system. The system takes a picture using a camera or a video, then segments the skin tone to identify a person's skin tone before identifying a human face. To obtain the relevant picture, the background of the image is detached. Then, the second phase is normalization, which removes noise and adjust the face to pixel position and luminance. In the third stage, any unsuitable aspects are eliminated. The last step codifies key gestures into six emotions: fear, pleasure, anger, awe, aversion, and sadness.

A description, using technical details, of the data solution application and how it aligns with the client’s business priorities you’re planning to solve.

**Data Description** – We use FER2013 as the dataset for our proposed system. Images have been automatically recorded and stored in the database using the Google image search application programming interface (API). The six universal facial expressions—angry, disgusted, afraid, happy, sad, surprised, and neutral as well as the neutral are assigned to each of the faces. 35,887 photos make up the final database in a neutral environments. Faces are shown in grayscale in 48 by 48 pixel pictures in Fer2013. The Fer2013.csv file works well for training. "Emotion" and "Pixels" are the two columns in the training file. The emotion that is present in the picture is represented by a numeric code in the "emotion" column that ranges from 0 to 6, inclusive. For each picture, a string enclosed in quotes is included in the "pixels" column. Spaces are used to separate the pixel values in row major order that make up this string. The "pixels" column is the only one in the testing file. The training set has 28,709 instances and there are 3,589 samples total in the test set.

A description of the data used for the application. Think data structure and formatting. What are the pros and cons of the data. If appropriate, comment on any anomalies in the dataset.

**Objective and Hypotheses** – The objective of emotion recognition is to recognize a player's feelings with 85% accuracy within 30 seconds. They system is user friendly and expected to have 75% or up of positive feedbacks. The inevitable step of face recognition technology is emotion recognition. Emotion detection is now based on the universal emotion theory, which identifies six primary emotions: fear, anger, happiness, sorrow, disgust, and surprise. I believe emotion recognition will be able to detect a player’s facial expression and generate meaningful results on market research and game developments.

The objectives represent the primary desired outcomes for the project and application. State what you want the application to achieve. The hypotheses should be structured as a proposed explanation for a phenomenon(s) based on what the application will produce. State the “if” condition and the “then” outcome which is the prediction of general outcomes. You’ll describe the outcome of your hypothesis in Prompt D.

**Methodology** – Iterative development that is divided into numerous stages is the foundation of the agile approach. Continuous testing and product improvement need for cross-functional teams and stakeholders to work together. The interaction between the development team and the client is the most crucial component of the agile process. Increasing flexibility and product quality is made possible by this because of the ongoing input received at every stage. The following are the stages of agile:

1. Requirements: Gathering needs for the product via dialogue with the client.

2. Development - The program is developed based on the specified specifications.

3. Testing - Quality assurance checks the product for flaws and if it satisfies user acceptance standards.

4. Delivery - Incorporating the product into manufacturing and delivering it.

5. Feedback - Gather input from stakeholders to create needs for the next product iteration.

An outline of the project methodology. Choose an industry standard methodology (e.g. ADDIE, Agile, or SDLC) that you’ll use to manage your project. Describe why that methodology is appropriate and then indicate what parts of the project will align with the methodology phases.

**Funding** **Requirements**— The proposed software will require$313,000 for initial funding which covers labors, equipment, and recourses. Extra cost might be incurred during the development depends on the complexity and out of scope requirements.

The project’s funding requirements. Taking into consideration environment, personnel, and any licensing or programming tools required what would be the overall cost involved. Be sure this amount matches the letter of transmittal.

**Stakeholders Impact** – Emotion recognition is a fast-emerging field of Artificial Intelligence that enables computers to study and comprehend nonverbal cues such as facial expressions, body language, images, and voice tones to determine a person's emotional state. The purpose of facial recognition is to capture player’s experiences and preferences. Hence, businesses can take advantages of the technology and apply it on their market research as well as product development.

Who has interest in the project and how will the completed project benefit them. More than likely this will be fictional so get that creative writing hat on.

**Data Precautions** – We take serval steps to collect data to ensure its security and accuracy. For the internal employees and users, we'll ask for their permission and have them sign a statement on how we can use their emotional data in this project. Regarding the third party, we conduct extensive research to verify the data's integrity as well as we have the authorization to use it.

Identify if any of the data from the dataset(s) are sensitive and/or protected. If sensitive, discuss the general guidelines related to working with the data. Obvious situations would be health care (HIPAA), education (FERPA), or payment (PCI DSS).

**Developer’s Expertise** – The developers assigned to this project are candidates with Computer Science or related background. The developers had experience in programing especially with Python. Besides, project management experiences are requirement for the team to keep track with the development cycle. Finally, quality assurance skills are vital before the software is released.

Provide information (e.g. academic training and professional expertise) about the software developer and how he/she is qualified to complete the project. Be sure to relate it to the solution you’re proposing. This content may be fictional.

**Section B**

Write a proposal for the technically savvy IT professional leadership of your client. This will contain industry appropriate jargon and sufficient technical details to describe the proposed project and resulting application. The topics look very similar to the Section A Project Recommendation, but the audiences are different. The proposal should include *each* of the following and *be written in future tense*:

**Problem Statement** – Emotion recognition is a fast-emerging field of Artificial Intelligence in gaming that enables computers to study and comprehend nonverbal cues such as facial expressions, body language, images, and voice tones in order to determine a player's emotional state. As a result, visual emotion AI uses computer vision technology to scan facial appearances in photos and videos to determine an individual's mental. The purpose of facial recognition is to capture player’s experiences and preferences. Hence, businesses can take advantages of the technology and apply the insight on game development which enhance personalization and product development. This project adopts the Convolutional Neural Networks (CNN) for facial recognition. After the input such as images is in the system, CNN will be able to distinguish emotions such as anger, contempt, disgust, fear, joy, sorrow, and surprise.

Describe the problem or opportunity you are solving. This could relate to the need for accurate analysis or predictive representation of the data.

**Customer Summary** – The proposed software is designed for RoosterTeeth game development. RoosterTeeth will be able to conduct the player’s emotion with a webcam or camera to capture his/ her facial expression. These data will be analyzed to come up with the emotion result on the website as an interface. Then, RoosterTeeth will be able to look into players’ emotion in real time and utilized the conducted data on game improvement and development.

Provide a description of the customers or users of the application and how this product will fulfill their needs. What is the environment where the application will be used and what special skill sets might be necessary?

**Existing System Analysis** – Our proposed software enables real-time, continuous, and unobtrusive monitoring of learners' facial expressions and translate the data into emotional states, in contrast to current technologies. Game-based learning is made more successful, efficient, and fun by including the learner's emotional states. During game-based learning, this framework allows real-time emotion identification of learners' emotions to prompt feedback for better learning. This study's objective is to confirm the incorporation of camera and data for an accurate and timely interpretation of facial expressions into emotional states when the software modules are calibrated with end users. By enhancing timely and relevant feedback, this integration will raise learners' awareness of their own behavior.

Summarize the technology environment prior to project initiation and the desired state of the environment upon project completion. This is a systems analysis for the project deliverables. This might also include a review of the existing functional gaps in the data products you are replacing.

**Data**– The data used in this project is from opensource dataset from Kaggle.com. We used FER2013 dataset which contains seven files for different emotion states. The dataset is available with the link: <https://www.kaggle.com/datasets/ananthu017/emotion-detection-fer>

Before we use the dataset, we will inspect the quality of the images in the data files. Any blurred or unnecessary images will be eliminated so that we can assure the optimal quality. More data will be added to the dataset to ensure the data completeness and accuracy in the long run. The new input should be in the same format same as the dataset in Kaggle; therefore, the data will be easily incorporated into the software.

Expand on the nature of the data you’re using including how it is to be collected and what techniques will be required to make the data usable. If you’re using a basic CSV file with clean data just note that.

**Project Methodology** – This project adapts the agile methodology for knowledge discovery. This is a common technique for solving challenges in the management, as well as a reliable and well-proven methodology.

1. Requirements - In order to identify requirements, the development team will first speak with the stakeholders. The input from the stakeholders might cause the requirements to alter during the cycle.

2. Development - The software will be created in accordance with the stakeholders' needs.

3. Testing - The agile approach encourages continuous testing, which the quality assurance team will carry out. To assess the usability and logic, they will utilize both black box and white box test scenarios.

4. Delivery - To facilitate acceptance testing, the product will be delivered to the client. If the product doesn't satisfy the requirements for acceptance, it will be returned for repair. It will be included to the RoosterTeeth if the acceptance test is successful.

5. Feedback - Stakeholders provide feedback, which will be transformed into new requirements in the next iteration of the agile process. Additional funds can be needed if there are features that are not included in the project's budget.

Elaborate on your methodology from the Project Recommendation by providing specific details about what aspects your project will be managed by each of the methodology phases. You don’t need to write a lot but be sure to give examples in each phase of the methodology.

**Project Outcomes** – Any materials used while developing the project should be included in the deliverables. The project's budget allocation, the project timeline, a record of any difficulties that arise during development, and development materials like charts are all included in the deliverables.

The data visualization and the emotion results will be part of the final delivery. The deliverables will also contain the product's dataset and source data.

Describe the deliverables associated with the design and development of the application. Use categories to such as Project Deliverables (In-process such as schedule, test plans, wireframes, or mockups) and Product Deliverables (Final outcomes such as functional GUI, maintenance tools, custom access, or specialized database.) to help clarify the logical distinction of the items you identify.

**Implementation Plan** – The agile technique will be the primary implementation strategy. The development team and the stakeholders will first communicate to produce the requirements and milestones. The original prototype, testing, and final distribution to the live production environment are the three stages of the implementation rollout.

As soon as work on the project starts, the development team will collaborate closely with RoosterTeeth to test and refine the prototype for emotion recognition in real time. The quality assurance team will test the product at various stages of its development to make sure there aren't any major flaws in its logic or operation. We will use testers for usability testing when the quality assurance testing is over. The product will be sent to RoosterTeeth for acceptance testing after passing all quality assurance and usability tests. The final distribution will be introduced into the active production environment after it has been approved.

The most significant output that will be provided at the conclusion of the agile development cycle will be a face detection system that is completely operational and includes all documentation about implementation and implementation faults. The data visualization dashboard and other papers from the product development's planning and design phase are examples of additional deliverables.

Explain how the project will be implemented. Your methodology material would work great here. Just reuse it. You may also include:

* Dependencies and milestones
* Deliverables – both tangible and intangible
* User testing -- if applicable

**Evaluation Plan** – The quality assurance team will continually test the product during all phases of development using the agile approach. Before being deployed into a real production environment, any problems or needs that are lacking will be found and fixed via cooperation between the development team and the stakeholders.

The accuracy of emotion states, which is very individualized and reliant on the player, will be used to evaluate the effectiveness of the emotion detection system. Testers will be used initially to gauge the detection system's accuracy, but the sample size will be too tiny to draw any firm conclusions. Users will be able to score the precision and satisfaction of their emotion detections using a rating system that will be deployed throughout the rollout of the new detection system with RoosterTeeth. It is possible to gauge success accurately by gathering user input.

Describe the methods for validating and verifying that the developed application meets the requirements and subsequently the needs of the client. Discuss your approach to quality assurance Consider industry standards and regulatory requirements.

**Resources and Costs** – Itemize the costs required to test and complete the project in a production environment. Be sure to include the following:

**Programming Environment** -- The emotion recognition system and data dashboard will be created by the data product using Python 3.7, Python data analysis and machine learning packages, Jupyter Notebook, HTML, and Github. The materials are completely open-sourced, cost-free, and work on both Mac and Windows PCs.

**Environment Costs** – RoosterTeeth will host the emotion detection system and interface. Both licensing and hosting services will be free of charge. Therefore, there will be no environmental cost.

Provide an explanation of the costs associated with the application. Some might be startup, first-time costs while others might be a percentage of licensing costs. Environment costs are relatively minimal. The environment where the system resides in a shared environment where costs are shared by the organizations.

**Human Resource Requirements** – The initial funding of this project is $40,000. The cost will be increased due to out-of-scope requirements. The entire development are basically divided into three stages:

• Stage one will need 150 hours ($15,000) to develop and test a functional prototype of the detection system.

• Stage two requires 100 hours ($10,000) to create and evaluate a working product model.

• Stage three requires 50 hours ($5,000) and includes acceptance testing, putting the product into use, and technical support.

What is the time and cost for the labor to complete the application?

**Timeline and Milestones**–

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Event** | **Start date** | **End date** | **Duration (hours)** | **Dependencies** | **Resource**  **Assigned** |
| 1. Project requirement meeting | 08/01/2022 | 08/01/2022 | 6 | NA | Development team, Quality assurance team, Management team, Stakeholders |
| 1. Project planning | 08/02/2022 | 08/03/2022 | 10 | Event 1 | Development team, Quality assurance team, Management team |
| 1. Project design | 08/04/2022 | 08/08/2022 | 20 | Event 2 | Development team |
| 1. Data analysis | 08/09/2022 | 08/12/2022 | 40 | Event 2 & 3 | Development team |
| 1. Emotion detection system development | 08/15/2022 | 08/19/2022 | 40 | Event 4 | Development team |
| 1. Interface development (website) | 08/22/2022 | 08/24/2022 | 15 | Event 4 & 5 | Development team |
| 1. Quality assurance testing | 08/25/2022 | 08/26/2022 | 10 | Event 1 - 6 | Quality assurance team |
| 1. Deliver prototype | 08/29/2022 | 08/30/2022 | 6 | Event 1-7 | Development team, Stakeholders |
| 1. Prototype improvement | 08/31/2022 | 09/02/2022 | 15 | Event 1-8 | Development team, Stakeholders |
| 1. Usability testing | 09/05/2022 | 09/06/2022 | 8 | Event 1-9 | Quality assurance team |
| 1. Adjustment/ improvement from usability testing | 09/07/2022 | 09/08/2022 | 8 | Event 1-10 | Development team, Stakeholders |
| 1. Deliver project to client | 09/09/2022 | 09/09/2022 | 6 | Event 1 – 11 | Development team, Stakeholders |
| 1. Acceptance testing | 09/12/2022 | 09/13/2022 | 8 | Event 1 -12 | Development team, Stakeholders |
| 1. Project implementation | 09/14/2022 | 09/16/2022 | 15 | Event 1 - 13 | Development team, Stakeholders |
| Total |  |  | 207 |  |  |

Generate a projected timeline, including milestones, start and end dates, duration for each milestone, dependencies, and resources assigned to each task. Use a table to display your timeline material.

**Section C**

Note: You do not need to write documentation for this section.

Design and develop a fully functional data product (application) addressing your identified business problem or organizational need. Your ability to explain in Section D how your application meets said need is essential so remember it’s the overall context of what your application is providing. To the best of your ability, include each of the following attributes:

**Data Methods** – There are two types of methods you must provide: 1. Descriptive. 2. non-descriptive or predictive.

1. Your descriptive methods are basic graphic data analysis. Provide three forms of visualization. Examples of acceptable descriptive methods:

* Pie chart
* Bar graph
* Bubble chart
* Scattergram

1. Also, provide one nondescriptive where a decision or trend could be inferred.

Examples of appropriate non-descriptive methods:

* Logistic regression
* Decision trees
* Random forest
* Neural network
* Multi-linear regression (if it includes a strong justification – like ease of interpretability)

**Datasets** – Select a dataset that meets the needs of your application. It doesn’t need to be an extensive set of fields. A simple CSV file will suffice as long as it allow the application to function correctly.

This could be student collected but publicly accessible data is preferred. Look at websites (e.g., Kaggle.com), governmental agencies (e.g., Department of Labor), or software related (e.g., GitHub.com). Be sure to consider the methodology used including possible disadvantages and challenges.

**Analytics**– You need to employ an analytical technique to provide the non-descriptive results. Regression analysis is a great example.

**Data Cleaning** – If you’re using a clear CSV file don’t worry about this one. If not, create a function that makes the data usable prior to actually being used by the application. Things such as featuring, parsing, cleaning, and wrangling the datasets.

**Data Visualization** – You need at least three representations of the data in graphic format. Look at things like charting, mapping, color theory, plots, diagrams, or other methods. Present these to enable users to inspect the data characteristics.

**Real-Time Queries** – Provide a way for the user to interact with the application. For example, to provide a necessary variable for calculation purposes.

**Adaptive Element** – if appropriate for the business need, provide the implementation of machine-learning methods and algorithms to enable the application to improve with experience. Examples include learning associations, classification, statistical arbitrage, prediction, extraction, and regression.

**Outcome Accuracy** – Describe how you’ve included a process for testing the accuracy of your non-descriptive results. This could be manual or automated (in the code). What are the parameters for valid output data and how will those be checked?

**Security Measures** – This depends on the project. If the environment is already secure, then note that in your Section D material. Another approach might be a login screen for authentication such as web based. You could also encrypt the data as another option.

**Product Health Monitoring** – A simple solution here is a log file that tracks things like exceptions or invalid data entries.

**Dashboard** – Include a functional interface where users enter value(s) and view results. This could be stand-alone, Web-based, or a mobile application interface.

**Section D**

Create a post-implementation report addressing the aspects of the project. This is where you convince the evaluator you knew what you were doing. Be sure to include sufficient detail about what you accomplished. Use graphics (including screenshots and code samples) to help explain and validate your application. Be sure your report includes the following elements. This should be written in past tense:

**Project Purpose** –The primary goal of this project was to use computers to automatically recognize human emotions in real time. This project intended to further the field of affective computing research by examining emotion identification in video game play. Enhancing the research on how emotions are expressed in video games could enhance the product's overall quality and, as a result, increased customer engagement. Since the gaming department is newly established under RoosterTeeth, it has not been equipped with the emotion detection technology.

With the implementation of the proposed system, RoosterTeeth could capture player’s emotion and feedbacks and couldcontribute to game user research. It is a revolutionary strategy that tries to take both practical and research methodologies into account to guarantee the best possible game quality.

Reiterate the business or organization problem that this application solved. How did the application address the “vision” or expectations of the client? Summarizes the technical functionality and end-user requirements that were met.

**Datasets** – We utilize FER2013 as the dataset for our suggested system. Faces have been automatically recorded in the database using the Google image search application programming interface (API). The six universal facial expressions—angry, disgusted, afraid, happy, sad, surprised, and neutral—as well as the neutral are assigned to each of the faces.

35,056 photos make up the final database, the most of them in natural environments. Faces in grayscale 48x48 pixel photos make up Fer2013. Fer2013.csv is a really effective training file.

The emotion that is present in the picture is represented by a numeric code in the "emotion" column that ranges from 0 to 6, inclusive.

The training set has 28,709 instances in it. There are 7178 samples total in the test set.

Text

Description automatically generated

**Figure 1. Number of emotion images in train and test data**

The data is categorized into 7 classes after loading the dataset: angry, disgust, fear, happy, neutral, sad and surprise. Total number of different emotions are shown for both train data and test data.

**Chart, bar chart

Description automatically generated**

**Figure 2. Bar chart of emotion images in train data**

It plotted the number of emotion images in train data in Figure 2.

**Chart, bar chart

Description automatically generated**

**Figure 3. Bar chart of emotion images in test data**

It plotted the number of emotion images in test data in Figure32.

Graphical user interface, text, application

Description automatically generated

**Figure 4. Examples of images in dataset**

Examples of 7 emotion images were displayed after categorizing the emotions in Figure 4.

**Data Product Code**

Timeline

Description automatically generated

To create the training and test datasets, we resized the image size to 48\*48 and set the color to grayscale. After doing this, we changed the training and test data into categorical mode.

Graphical user interface, text, application

Description automatically generated

Table

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Table

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sklearn.metrics

We applied the CNN model for the emotion detection system. We started by initializing the CNN model followed by relu as activation function which returns 0 if the input is negative and returns for the positive. Then, we used the batchnormalization to make the neural networks faster through normalization of layers. The dense layer allowed each neuron in the layer receives input from all neurons of its previous layer. Max pool layers and dropouts were added so that the learning can be done efficiently. Afterwards, we compile the model using Adam as an optimizer, loss as categorical cross-entropy, and metrics as accuracy.

Review the functionality of the code used to perform the analysis of the data and how it provided the necessary functionality of predictive outputs. You will also need to submit the entire, functional source code.

**Hypothesis verification** – Discuss if and why the initially established project hypothesis was accepted or rejected based on the use of the application.

**Effective Visualizations and Reporting** – Provide a description of how your visualizations helped describe the data. This needs to include items such as how your application supported data preparation, data analysis, and data summary

**Accuracy analysis** – Assess how accurate your application is at presenting the data and providing predictive outcomes. Provide an example of what the data showed and explain why those offer representative artifacts of the application’s accuracy.

**Application Testing** – Application testing was conducted throughout the development of the emotion detection system. Continuous testing was conducted per the agile methodology. The functionality test was used on the prototype of the emotion detection system on the dashboard. Once the system was complete, it was integrated into a clone of the RoosterTeeth’s gaming department to be used by testers. The testers were used to perform the usability test of the system. After performing all the required testing, the final test was the acceptance test performed by RoosterTeeth to ensure that all the requirements were met.

**Application Files** – Provide a clear, comprehensive inventory of the files required to execute your application including interdependencies. Include those files in the submission.

**User’s Guide** – Include a brief manual for the installation and use of your application. Describe all steps necessary to establish an environment capable of running your application and producing the required results. Please include details on the technology context that is required for your application to properly execute.

**Summation of Learning Experience** – Describe how your experience led to your completion of the capstone project. What assistance did you seek out from other individuals? How has the experience contributed to your concept of life-long learning?

**Section E**

The easiest way to do this section is don’t quote anything. Then you can leave it out.

If you do quote, then acknowledge sources using standard APA intext and full citations.

**Section F**

Demonstrate professional communication in the content and presentation of your submission. It is paramount that you provide a well-organized, professionally formatted set of documents. Remember, the evaluator will be looking at the overall presentation of this project. Ensure that all material is accurate and provide the proper context concerning the nature of the application and how it functions. Clear, concise, and accurate material will go a long way in ensuring your submission is successful.

Huizinga, J. (2016). *Homo ludens: A study of the play element in culture*. Angelico Press.