

## **Kurangkuran: Android-Based Game Application Featuring Kapampangan Cuisines**

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*This study was conducted to develop and implement an Android-based game application that features Kapampangan home dishes that serve as a learning tool for children with ages six (6) to twelve (12) years old. The application was created due to the three factors: avert the users from focusing on games that contain inappropriate violence, control and limit the playing time of the children to avoid gaming addiction and prevents them from engaging to dangerous situations. The researchers also conducted an evaluation, made use of the evaluation criteria based on the metrics of ISO 25010:2011 that include; functionality, performance efficiency, compatibility, usability, reliability, maintainability, and portability. The study purposively gathered participants with the age group ranging from six to twelve years old, three I.T. experts and three field experts. The result of evaluation shows that the application was successfully developed and became useful to promote Kapampangan home dishes and traditional cooking to its users.*

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*Keywords: Kapampangan Cuisines, android, learning application*

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### **Introduction**

The use of smartphone has become a trend for all most everybody worldwide. Without one, life seems to be boring and difficult. Smartphone is a cellular phone that contains integrated computer features that run different operating systems such as Android, iOS and Windows (Rouse, Techtarget, 2019). Smartphone can also be viable means of learning device particularly in game applications. Nowadays, educational video games are becoming popular among the younger generation. Educational video games allow students to focus well enough, and if learning task is set in the context of a story, they will learn more (Online Education, 2016).

According to the latest statistics developed, smartphone users worldwide grammatically increased from 2014 to 2020 of about billions. It is expected that in the year 2019, it would surpass five (5) billion (Statista, 2019). In the study "What is the Mobile vs. Desktop Story Between 2016 and 2017?", the percentage of visits from mobile devices grew from 57% to 63%, and the percentage of time on site from mobile devices grew from 40% to 49%. Smartphones have radically changed people's lives.

In this generation's era of entertainment, both young and adult are attracted to video and online games. In addition to that, because of the fact that kids love playing video games, the chance of being exposed to violent or inappropriate content scenarios is high. Violent games make hurting and killing people entertaining. This notion that violence is fun can cause gamers to imitate the game just for fun. Studies show that violent games have had a desensitizing and decentralizing effect on players, making them unable to differentiate between reality and fantasy. Violence and pornography video games such as "Grand Thief Auto" and "Call of Duty" for over 18 years are training children to shoot and kill in a virtual world in which the values of

life are lost (Kid Crono, 2017). A survey and interview found that while the vast majority of parents (93%) that used smartphone also let their children use it, they are after the benefit of the educational and interactive side of the game (Bonasio, 2017).

During the early part of the 21<sup>st</sup> century in the central plain of Luzon, there live an ethnolinguistic group of people in the province of Pampanga. This group of people of approximately some two million in population is known as the Pampangos or Kapampangans including those that lived in the nearby areas (Encyclopedia Britannica, 2019). The Kapampangans are known to be good cooks, and the province has been regarded as the food capital of the Philippines. This was universally accepted although contested by other claims. While other regions are known for single dishes and desserts, Pampanga possesses an exhaustible store or abundance of culinary delights, from colonial to folk to exotic (Tantingco, 2018). Sun Star Philippines stated that it has been a common notion or belief for many Filipinos that if you are a Kapampangan or a native of Pampanga, then you should be naturally a good cook. In Kapampangan households, the kitchen is considered as the biggest and busiest part of the house.

The Kapampangans developed their own style of cooking, and their culinary expertise is passed on from one generation to the next. Lillian Lising-Borromeo, the founder of “Kusinerang Kapampangan”, a non-profit organization that advocates for the promotion of Pampanga’s classic recipes, said that one of her culinary passions is the preservation of Kapampanga’s heirloom dishes. Heirloom dishes refer to styles of cooking that have been passed on from one generation to another (ABS-CBN News, 2019). Kapampangan cuisine is deeply traceable to Spanish cuisine but has similarities to Malay and Mexican cuisines. Innovations have been incorporated that eventually resulted to the birth of the different exotic dishes such as the camaru or crispy fried crickets and the batute or stuffed frog. In almost all of Kapampangan dishes, the diverse and rich flavors are undoubtedly present for the simple reason that they use the best quality ingredients (Garcia, 2018). On a sad note, the younger generation or the so-called “millennial” residing in Pampanga lacks much knowledge about the different Kapampangan home dishes, and more so, they do not even know how to cook. This is according to an interview with Mr. Mike Pangilinan in 2019, an expert in Asian history and philosophy, and also the “Talasínup king Singsing” (Keeper of Heritage).

In this regard, the researchers took an extensive initiative to develop an educational game using the latest smartphone technology that specifically focuses on and incorporates some of the famous Kapampangan cuisines. The purpose of the learning application is for the children ages 6-12 years old to be familiarized with different Kapampangan dishes and as a contribution to Kapampangan heritage. The success of the proposed project is significantly helpful not only to the Kapampangans, but also to other regional populations in the country, young and adults alike.

## Method

The conceptual framework is shown in Figure 1.

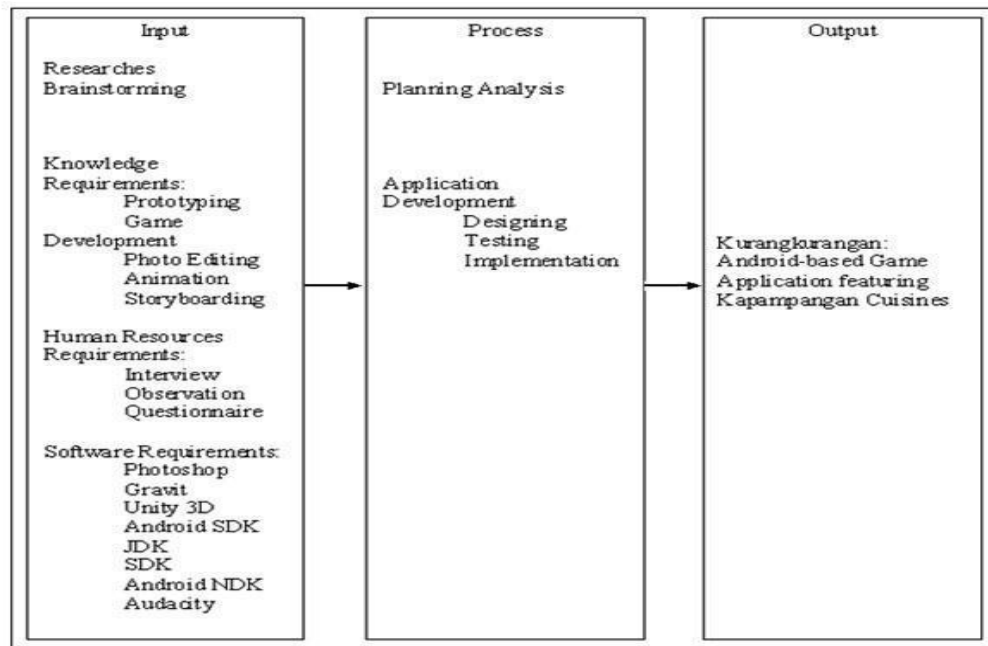


Figure 1. Conceptual Framework of the Study

Inputs are the ways that used in gathering data. In this study, the researchers used interviews and observations. Skills such as photo editing, animation, storyboarding and software development of the application are also part of the inputs. Designing, testing and implementation are the processes conducted by the researchers to come up with an application called Kurangkuran, an Android-based game application featuring Kapampangan cuisines.

The system development methodology is shown in Figure 2.

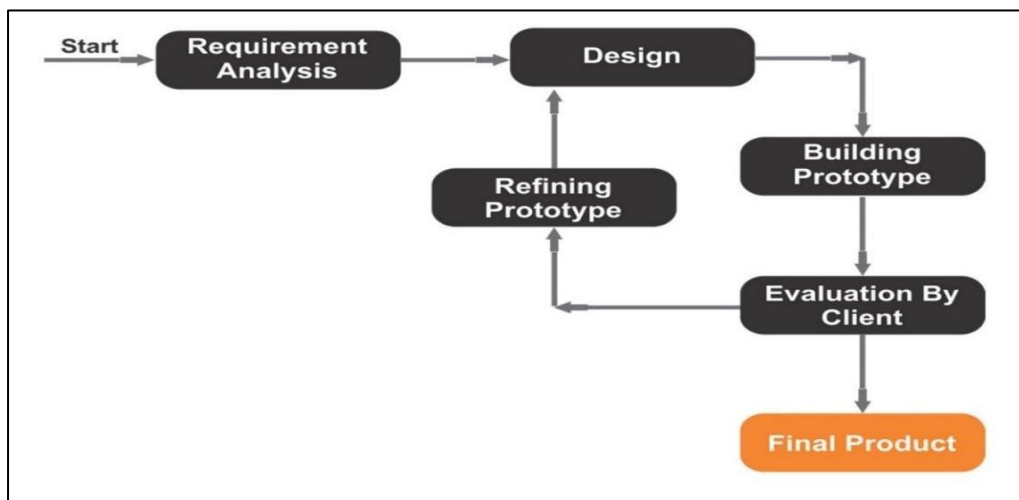


Figure 2. System Development Methodology

The study used prototyping methodology, which is a system development method in which a prototype is developed, tested and then refined as needed until an acceptable prototype is achieved (Reproduction, 2019). In prototyping model, it is assumed that the requirements may be unknown at the beginning of the development of the system (Guru99, 2019). The objective of prototyping is to show accordance between the product requirements, ideas of developers and users' mental models.

The use case diagram is shown in Figure 3.

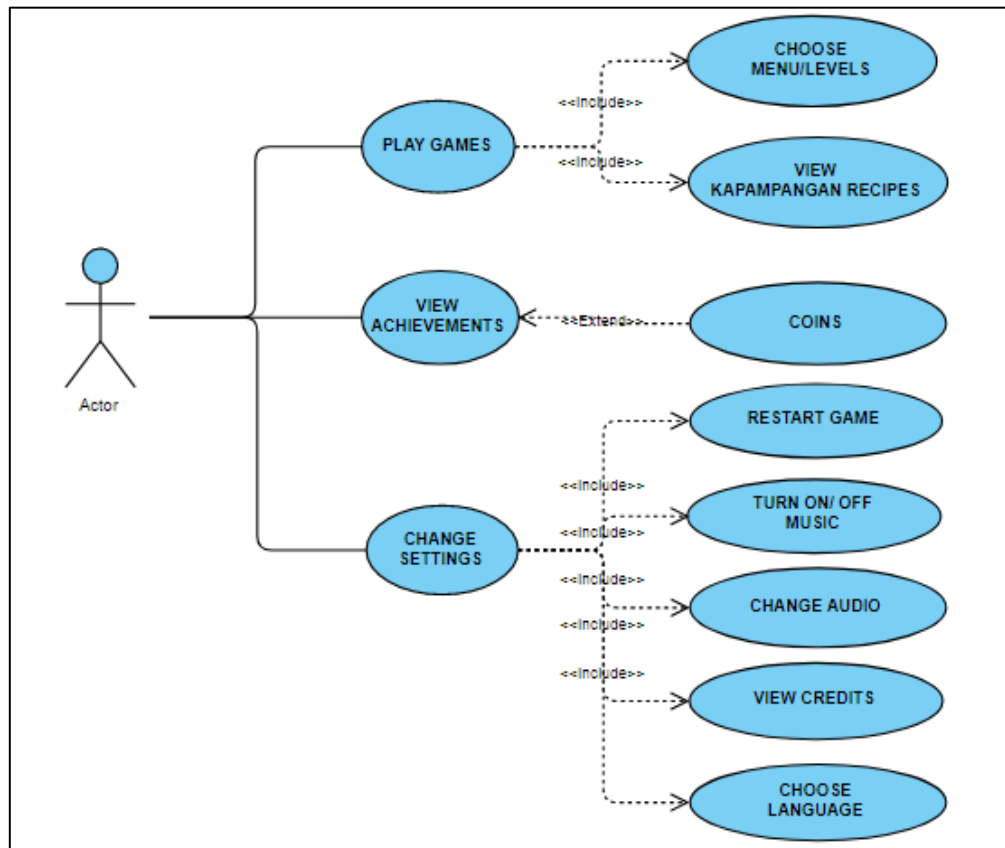


Figure 3. Use Case Diagram

Use Case Diagram is a graphic illustration of the interactions among the elements of the system. The “Play” module includes the five levels of the game and the 15 Kapampangan recipes. Meanwhile, the “Coins” or the rewards after completing the levels, are the extension of the “Achievement” module. Lastly, “Settings” includes “Credits”, “Restart”, “Music”, “Audio”, and “Language” options.

## Results

The User Interface (see Figures 4-7) shows the different views that can be seen in the application.



Figure 4. Main Menu

The main menu (Figure 4) is the first thing that the user sees when he runs the program.



Figure 5. Levels of the Game

The game (Figure 5) shows the different levels a user should finish.



Figure 6. Achievements and Coins

The achievements and coins (Figure 6) show the user's accomplishments throughout the game.



*Figure 7. Settings and Options*

Settings and options (Figure 7) show the settings that can be done in the application.

A total of 50 participants aged 6-12 years old with their parents and/or guardians evaluated the application. Additionally, three (3) IT experts were also included to evaluate the application.

The quality of a system is the degree to which the system satisfies the stated and implied needs of the stakeholders. The ISO 25010 or the Software Product Quality was used to evaluate the application. It is comprised with eight quality characteristics:

1. Functional suitability was evaluated so that the researchers and the user can analyze if the application created provides the functions and correct results.
2. Performance efficiency was evaluated to analyze if the application responds and processes according to the user's requirements.
3. Compatibility was evaluated to see if the application can still perform properly with other application without experiencing any difficulties.
4. Usability was evaluated to see if the application is easily recognized by its potential users, easy to learn, easy to use and contains pleasing and satisfying user interface.
5. Reliability was evaluated and tested to see if the application provides reliable output and information.
6. Security was used to measure the degree of data access appropriate to their types and levels of authorization.
7. Maintainability was evaluated to see the effectiveness and efficiency of the application when it comes to modularity, reusability and modifiability.
8. Portability was evaluated and tested to see if the application can run and be installed to another Android version and Android phone models.

*Table 1. Assessment of Users*

<b>Indicators</b>	<b>Mean</b>	<b>Description</b>
Functional Suitability	4.74	Excellent
Performance Efficiency	4.56	Excellent
Usability	4.62	Excellent
Reliability	4.78	Excellent
Portability	4.50	Excellent
Overall	4.64	Excellent

Table 1 shows the result of the evaluation from the users. The overall rating given to the application has the mean of 4.64 which is equivalent to an excellent rating. This shows that the application met the users' requirements.

*Table 2. Assessment of IT Experts*

<b>Criteria</b>	<b>Mean</b>	<b>Descriptive Rating</b>
Functionality	4.33	Excellent
Performance efficiency	3.67	Very Good
Compatibility	4.00	Very Good
Usability	3.75	Very Good
Reliability	4.00	Very Good
Maintainability	3.67	Very Good
Portability	4.00	Excellent
Overall	3.91	Very Good

Table 2 shows the result of the evaluation of IT Experts. The overall rating given to the application is 3.91, that is, very good.

## **Discussion**

After completing all the modules, the researchers successfully created an Android-based game application featuring Kapampangan cuisines. Based on the combined results from all the evaluators, the abovementioned application met the users' requirements given the high rating of 4.25. This only means that it is excellent for its functionality, performance, usability, reliability, portability, maintainability and compatibility. In addition to that, "Kurangkurangan" game application provides a means to make the Kapampangan cuisines known to the younger generation that helps them truly understand the Kapampangan culture. It can also be used as a cooking guide for the parent and/or guardian using the Kapampangan recipe feature that displays complete ingredients and procedures of each dish.

## Conclusion

Based on the results, the following conclusions are drawn:

1. The researchers successfully developed a game application that gives the users appropriate and educational contents.
2. The researchers successfully created a cooking application that contains lives and timers that help the users control their playing time to avoid being addicted to the game.
3. The researchers successfully provided the users a learning application that can help improve their familiarity, discipline and interest with the use of different functionalities provided by the application.
4. The researchers successfully developed a game application that features Kapampangan cuisines.

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