

# Android Game Development: Hunting Philippine Delicacies

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**Abstract:** This study aimed to create an application that would show some Philippine delicacies in game concept using Android Technology. The selected respondents of the study are students in Our Lady of Fatima University, Lagro, Quezon City Campus. It intends to correlate the demographic profile of the respondents and what the respondents think about program in term of accuracy, reliability and user friendly. To obtain data the proponents used a survey form, it was conducted to the 100 respondents composed of 50 BSTM and 50 BSHRM students. After a thorough analysis of the data, it showed that majority of the respondents find the program accurate, reliable and user friendly. It was found that male respondents are dominant in terms of number. It was also found that the respondents have a significant difference in the answer depending on the respondents' demographic profile. According to the respondents this program will be helpful for the students and for those who want to learn cooking different delicacies. The program also helped them to become more familiar with all the regions in the Philippines through the trivia's that they got at the end of each level. The study found that the delicacies in the Philippines would be easily to understand by applying it in-game. Most Filipino citizens are socializing thru mobile and applying it to Android Technology it would be more accessible since it is the most trending mobile platform. The application gives some trivia around the Philippines. The study proven that the user can be aware that they have in they own country. It conclude in this study Hunting Game for Philippine Delicacies Using Android Technology is a good source of information about Philippines delicacies in game concept and attract tourist to visit tourist spots in the Philippines.

**Keywords:** Android, Philippines, Delicacies

## I. Introduction

Android is a Linux-based operating system designed primarily for touch screen mobile device such as Smart phones and tablet computers. Initially developed by Android Incorporation, Google backed financially and later bought in 2005. Android was unveiled in 2007 along with the founding of the Open Handset Alliance. This days Smartphone are not only used for calling and texting now they can also be used as a camera, television, radio, game station, GPS and much more, they can also connect to internet, video chat and more. Smart phones have been part of our daily life; it is like having one is a must during these days. Its size and usefulness has proven how our life would be easier with it. The proponents made an android game that helped understand the Philippines more. It will be introducing different kinds of delicacies and others stuff all around the Philippines. It will also promote different tourist spots that can only be found in the Philippines. This program will be educational not only to those who live outside of the Philippines it might also help other Filipinos to understand what they have in their country. The main purpose of this research is to develop a game that test the knowledge of oneself about the specialties of each region in the Philippines in an entertaining way. It was made on the Android Operating System since it is commonly used these days specially the game applications. This is a simple point and click game but it will need some knowledge to get through the different levels. This will also show some trivia's about the different places and delicacies in the Philippines. This research used to improve the younger Filipinos knowledge about the Philippines tourist spots and specialties so the user can be more aware of what the Philippines have. It will also help those who studies culinary which may help the user start a business. This might also help to improve the tourism in the Philippines.

### 1. GENERAL OBJECTIVE

The main objective of this research is to develop a hunting game for Philippine delicacies. Also the game can automatic save the game data. Information about the

Philippine Delicacies in game concept is the way of educating the users.

### 1.1 SPECIFIC OBJECTIVES

The study sought to accomplish the following objectives.

1. To create a program that will run in Android 4.0 up to Android 4.2.2
2. To design a game that helpful for providing a cooking knowledge.
3. To present the different delicacies in each region in the Philippines.
4. To create:
  - a. a automatic game data save.
  - b. a option to game reset
  - c. a program option to turn on/off the sound.
  - d. a list of records for scoring
  - e. a loading screen that will show some trivia in each region of the Philippines.
5. To implement the program using online application store for smart phones.

### 5.1 STATEMENT OF THE PROBLEM

To prove that the development of Hunting Game for Philippine Delicacies using Android Technology is accurate, reliable, and user friendly the following questions are answered.

#### Research Question 1:

What is the demographic profile of the respondents in terms of:

- 1.1 Age
- 1.2 Gender
- 1.3 Course
- 1.4 Year Level

#### Research Question 2:

How did the respondents asses the Hunting Game for Philippine Delicacies Using Android Technology in terms of:

- 2.1 Accuracy
- 2.2 Reliability
- 2.3 User Friendly

**Research Question 3:**

Is there any significant difference in the assessment of respondents on the Hunting Game for Philippine Delicacies using Android Technology?

**5.2 HYPOTHESIS**

There is no significant difference in the assessment of the respondent on Hunting Game for Philippine Delicacies Using Android Technology if the respondents are grouped according to their demographic profile.

**SCOPE AND LIMITATIONS**

The proponents are focused on each region in the Philippines. The proponents selected 3 delicacies in each region. The proposed system is to create a hunting game for Philippines Delicacies in Android Platform. The game records are based on the score of the game and the accuracy of the user to answer the game. The accuracy is based on the remaining lives of the player. The score system is a adding and deducting, based on the correct and wrong answer. There is no negative score, if the player got a wrong answer when a zero scores, it remains zero. The proponent's limits the game play lives by 3 and once the player lost all lives, the game is over. The game plays in each stage have 15 recipes to choose by the player. Each region has 3 stages. The program only runs in Android smart phones and Tablets. The program is running on Android version 4.0 up to version 4.2.2.

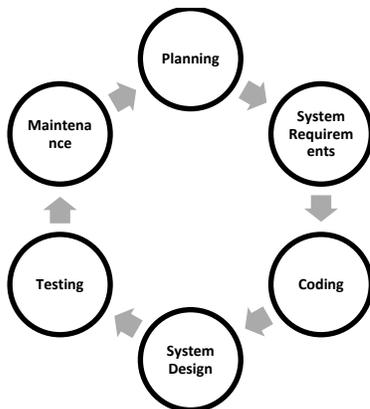
**5.3 SIGNIFICANCE OF THE STUDY**

This section states the importance of the study in this field, and how the people concerned will benefit from the proposed system.

**Android Users** – The program runs in the Android platform which is commonly used this day.

**HRM/Culinary Students** - Since this program is about delicacies it will be helpful to those who studies cooking.

**Food Aficionado Blogs and Reviews**– They are the sources of the recipe that are used in the program.

**2. RESEARCH METHODOLOGY****2.1 System Design**

**Figure 1.0:** System Design Life Cycle

**2.1.1 Planning**

The development of the project includes the usage of Android technology to spread knowledge about the delicacies in the Philippines. The proponents used Game Maker Studio with Android SDK and JAVA JDK as their programming language.

**2.1.2 System Requirements**

- CPU: Dual Core Cortex A7 or Higher
- RAM: 512MB or Higher
- OS: Android Ice Cream Sandwich/Android Jellybean

**2.1.3 Coding**

The proponents used Game Maker Studio for coding and Android SDK and JAVA JDK for the references of the Game Maker Studio. Game Maker Studio is a game engine usually for 2D design. The proponents use the game maker studio language to code the application and apply it to android by the use of Android SDK and JAVA JDK as the references. Android Software Development kit is a tool provided by Google Incorporated; the tool helps and guides to development an Android application. Java Development Kit is tool for create a java application, JDK also need to run the Java applications.

**2.1.4 Design**

The design of the game is centered on the map of the Philippines where there would be a button for each region. At the start the only region that is lighted is Region I to proceed to the next region the user should at least get one star in the previous region. The proponents used Photoshop to design the icons, logos and backgrounds. The proponents also used Game Maker Studio with Android SDK and JAVA JDK as their programming language.



**Figure 2.0:** Title Screen



**Figure 2.1:** Game Settings



Figure 2.2: Records



Figure 2.7: Game Play



Figure 2.3: Region Selection Screen



Figure 2.4: Level Selection Screen



Figure 2.5: Loading Screen



Figure 2.6: Clues Screen

The diagram shows the program flowchart of the Hunting Game for Philippine Delicacies using Android Technology which is the basis of system design.

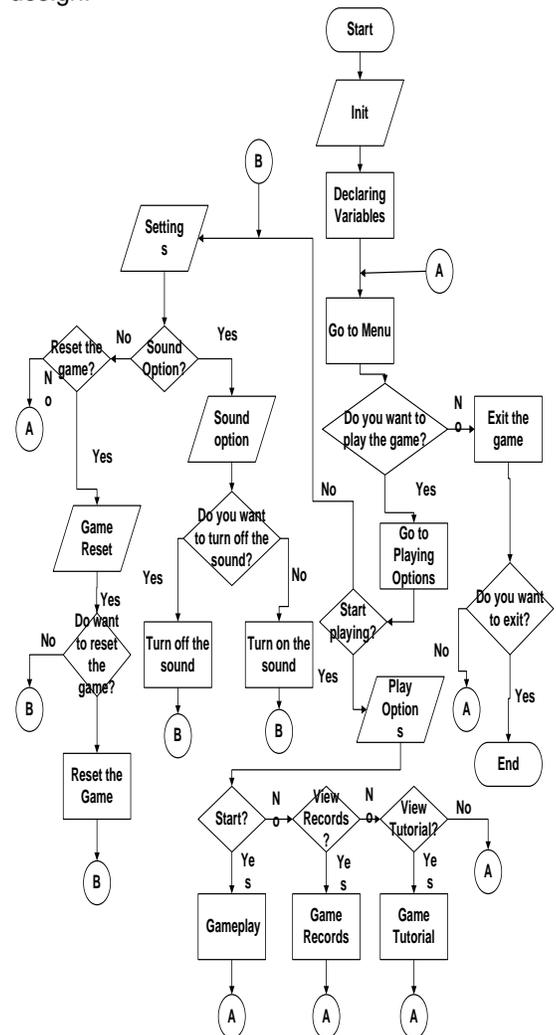


Figure 3.0: Program Flowchart of Hunting Game for Philippine Delicacies using Android Technology

2.1.5 Testing

The researchers conducted a survey in Our Lady of Fatima University, Quezon City Campus. The proponents asked some students from BSTM, and BSHRM to answer the survey. The proponents have let the respondents test the program and then give them enough time to answer the

survey. The survey consisted of questions of how user friendly the program is. It also asked for some recommendation that the respondent thinks that helped the program improve.

### 2.1.6 Maintenance

The proponents test the application thoroughly and from the testing of the respondents to find the errors or bugs in the program. As the results the proponents will fix the bugs that are founded in the program.

## 3. RESULTS AND DISCUSSIONS

**Table 1.** Hunting Game for Philippine Delicacies using Android Technology Demographic Profile of the Respondents

Number of Respondents = 100		
Intervals	f	p
<b>Age</b>		
16-17	64	64%
18-19	26	26%
20-21	9	9%
22-23	1	1%
<b>Total</b>	100	100%
<b>Gender</b>		
M	51	51%
F	49	49%
<b>Total</b>	100	100%
<b>Course</b>		
BSTM	50	50%
BSHRM	50	50%
<b>Total</b>	100	100%
<b>Year Level</b>		
1 <sup>st</sup>	58	58%
2 <sup>nd</sup>	26	26%
3 <sup>rd</sup>	9	9%
4 <sup>th</sup>	7	7%
<b>Total</b>	100	100%

Table 1 presents the frequency and percentage distribution according to the demographic profile, which includes the Age, Gender, Course, and Year Level of the respondents. From the gathered data regarding the age of the respondents, the lowest age range between 16-17 with the total number of 64 or 64%, followed by the age between ranges 18-19 got the total number of 26 or 26%, also the age between ranges of 20-21 with total number of 9 or 9%, and at last the highest age range between 22-23 got the total number of 1 or 1%. Table 1 also shows the total gender distribution of the respondents which the total number of the male is 51 or 51% while the total number of the female is 49 or 49%. Total of 100 or 100% are the respondents which are compose of 50 BSTM students and 50 BSHRM students. Table 1 also shows the data of the year levels of the respondents. From the gathered data the 1<sup>st</sup> Year Level got the highest total number which is 58 or 58% while the 2<sup>nd</sup> Year Level got the total number of 26 or 26% followed by the 3<sup>rd</sup> Year Level which is the total number is 9 or 9% and the 4<sup>th</sup> Year Level which is got the lowest total number of 7 or 7%.

**Table 2.** Assessment of the Respondents on Hunting Game for Philippine Delicacies Using Android Technology

Number of Respondents = 100				
Criteria	Weighted Mean	Verbal Interpretation	Rank	Standard Deviation
<b>Accuracy</b>				
1. The delicacies represent each region accurately.	4.65	Strongly Agree	5	0.4794
2. The ingredients needed in the accurately.	4.74	Strongly Agree	3.5	0.4408
3. The high scores updated.	4.81	Strongly Agree	1.5	0.3943
4. The clues helped in answering the question.	4.74	Strongly Agree	3.5	0.4408
5. The application responses accurately on every user's command.	4.81	Strongly Agree	1.5	0.3943
<b>Grand Mean</b>	4.75	Strongly Agree		
<b>Reliability</b>				
1. Not encountered any errors while playing.	4.87	Strongly Agree	1	0.3380
2. Acquired new recipe while playing the game.	4.73	Strongly Agree	5	0.4462
3. Helpful for students.	4.76	Strongly Agree	4	0.4948
4. Helps provide the cooking knowledge.	4.77	Strongly Agree	3	0.4230
5. The application reliable and gives useful information.	4.85	Strongly Agree	2	0.3589
<b>Grand Mean</b>	4.80	Strongly Agree		
<b>User Friendly</b>				
1. The game is compatible with most smart phones today.	4.8	Strongly Agree	4	0.4020
2. The game is playable for all ages.	4.76	Strongly Agree	5	0.4292
3. Recommend the game to others.	4.82	Strongly Agree	3	0.3861

4. The application will be downloading in Play Store.	4.85	Strongly Agree	2	0.3589
<b>Grand Mean</b>	4.81	Strongly Agree		

Table 2 illustrates the assessment of the respondents on Hunting Game for Philippine Delicacies Using Android Technology. It shows the terms of the Accuracy which on how the delicacies presentation by each region accurately obtained the total number of weighted mean are 4.65 and the verbal interpretation is Strongly Agree and the standard deviation got 0.4794. While the terms of Accuracy on how the ingredients needed, obtained the total number of weighted mean are 4.74 also the verbal interpretation is Strongly Agree and the standard deviation is 0.4408. The results of the terms of Accuracy of how the high score update, obtained the total number of weighted mean are 4.81 and the verbal interpretation is Strongly Agree and the standard deviation got 0.3943 followed by the terms of Accuracy on how helpful the clues are obtained the total number of weighted mean are 4.74 also the verbal interpretation is Strongly Agree and the standard deviation's got 0.4408. When it comes on how responsive the application is, obtained the total number of weighted mean are 4.81 also the Verbal Interpretation is Strongly Agree and the standard deviation is 0.3943. The Grand Mean the terms of Accuracy results is 4.75. Table 2 also shows the terms of Reliability, if the application did not encountered any errors result of the weighted mean got 4.87 while the verbal interpretation is Strong Agree and the standard deviation is 0.3380. Also in the terms of Reliability, on how the respondents acquired new recipe result of the weighted mean got 4.73 with the verbal interpretation is Strongly Agree and the standard deviation is 0.4462 in the other hand, the terms of Reliability, on the application helpful for the student's result of the weighted mean got 4.76 and the verbal interpretation is Strong Agree and the standard deviation is 0.4948. The term Reliability, on how the game helps provide the knowledge in cooking of the respondent's result of the weighted mean of 4.77 and the verbal interpretation is Strongly Agree and the standard deviation is 0.4230. The term of Reliability on how the application reliable and on how its useful for given an information results the weighted mean got 4.85 while the verbal interpretation is Strongly Agree and the standard deviation is 0.3589. The Grand Mean the terms of Reliability results is 4.80. The terms of User Friendly, on how the game capability with the most smart phone today result of the weighted mean by 4.8 and verbal interpretation is Strongly Agree while the standard deviation is 0.4020. Also the results on how the game playability for all ages, the weighted mean is 4.76 while the verbal interpretation results into Strongly Agree and the standard deviation is 0.4292. The recommendation of the application others results are the weighted mean is 4.82 and the verbal interpretation results of Strongly Agree and the standard deviation is 0.3861. Also the terms of User Friendly for the application ability to download in Google Play Store results of the weighted mean by 4.85 and the verbal interpretation results is Strongly Agree and the standard deviation is

0.3589. The Grand Mean the terms of Users Friendly results is 4.81.

**Table 3.** Significant Difference in the Assessment of the Respondent on Hunting Game for Philippine Delicacies Using Android Technology if they are Grouped According to their Profile

Number of Respondents = 100					
	Profile	Computed Z	Tabulated	Decision	Conclusion
A C C U R A C Y	Age	32.41	±1.96	Reject Ho	Significant
	Gender	151.46	±1.96	Reject Ho	Significant
	Course	151.39	±1.96	Reject Ho	Significant
	Year level	133.27	±1.96	Reject Ho	Significant
R E L I A B I L I T Y	Age	35.58	±1.96	Reject Ho	Significant
	Gender	170.50	±1.96	Reject Ho	Significant
	Course	170.42	±1.96	Reject Ho	Significant
	Year level	146.29	±1.96	Reject Ho	Significant
U S E R  F R I E N D L Y	Age	11.12	±1.96	Reject Ho	Significant
	Gender	172.31	±1.96	Reject Ho	Significant
	Course	172.21	±1.96	Reject Ho	Significant
	Year level	136.86	±1.96	Reject Ho	Significant

Table 3 shows the significant difference in the assessment of respondents in grouped of Accuracy, Reliability and Users Friendly. The terms of Accuracy, the age of the respondents overall score of the z-test is 32.41 at ±1.96 critical value that means the null hypothesis is rejected. It possibly indicated that the game accuracy affect whatever the age of the respondents, probably the game hint is the main point. With reference of the gender of the

respondents, the z-test computed value is 151.46 at  $\pm 1.96$  critical value therefore the accuracy of the game helpful to user either male or female that's why the null hypothesis is rejected. When it comes on the course of the respondents the overall score of z-test is 151.39 at  $\pm 1.96$  critical value meaning that the courses BSTM and BSHRM agreed on the information given on the game, the null hypothesis is rejected. The overall score of year level, z-test computed is 133.27 at  $\pm 1.96$  critical value that's why the null hypothesis is rejected. In terms of Reliability, The z-test result of the age is 35.58 at  $\pm 1.96$  critical value indicated that the game affects no matter what the age of the user. It can be an advantage to the user to have a new knowledge about delicacies all around the Philippines that's why the null hypothesis is rejected. When it comes to the gender of the respondents, the computed z-test is 170.50 at  $\pm 1.96$  critical value, the null hypothesis is rejected. This may signify that the game is impartial to male and female. In reference of the course of the respondents, the result of the z-test is 170.42 at  $\pm 1.96$  critical value notifies that the game is reliable to the respondents even if the respondents are BSTM and BSHRM, the null hypothesis is rejected. At last the z-test result of the year level is 146.29 at  $\pm 1.96$  critical value indicated that whatever is the year level of the respondents, the game is still reliable that's why the null hypothesis is rejected. When it comes to the terms of the User Friendly, the age overall score of the z-test is 11.12 at  $\pm 1.96$  critical value meaning that the game is suit for all ages probably. In reference of the gender of respondents, the computed z-test is 172.31 at  $\pm 1.96$  critical value indicated that the Hunting Philippines game is qualified to play for male and female user. While the z-test result of the course of the respondents is 172.21 at  $\pm 1.96$  critical value, the correction is statistically significant and the null hypothesis is rejected. As the result, the BSTM and BSHRM strongly agreed to recommend the game to others and apply to online apps stores. The year level computed result of z-test is 136.86 at  $\pm 1.96$  critical value, thus the null hypothesis is rejected and the correction is statistical significant.

#### 4. SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

##### 4.1 Summary of Findings

Based on the gathered data, the following findings are hereby presented:

For the demographic profile of the respondents, in terms of age, it shows that most of the respondents belong to the age bracket of 16-17. While the respondents belong to the age of 22-23 got the least number of respondents. The gathered data also shows that the male respondents are more dominant in terms of number. Most of the respondents were in 1<sup>st</sup> year college followed by the 2<sup>nd</sup> year college and then the 3<sup>rd</sup> year and the 4<sup>th</sup> year college students. For the assessment of the respondents in terms of the Accuracy of the game, most of the respondents found the program working properly for the reason of the program being responsive and the high scores update every time the user beats the high score. The game hints which help the user to answer what are the remaining recipes of the delicacy, and lastly the accuracy of the delicacies that represented each region. Overall the respondents agreed

that the programs represented the delicacies in each region accurately and the program being responsive. For the assessment of the respondents in terms of the Reliability of the game most of the respondent did not find any error while playing the game. The respondent also found the game reliable in giving useful information and it helps to improve the users cooking knowledge. It will be helpful for some student and good source for acquiring new recipe. For the assessment of the respondents in terms of the Reliability of the game most of the respondent thinks that it will be downloaded from the Play Store if it was uploaded. The respondent thinks that the program is compatible with most of the smart phones these days.

##### 4.2 Conclusions

On the basis of the above summary of findings of this study, the researchers came up with following conclusions:

1. The proponents were able to create a Hunting Game for Philippine Delicacies using Android Technology. The application game is successfully running in the version of Android 4.0(Ice Cream Sandwich) up to Android 4.2.2(Jellybean). The proponents also successfully programmed the option to game reset and the sound option for the settings.
2. It showed that most of the respondents are under the age bracket of sixteen (16) and seventeen (17), and male respondents acquired a greater number than female respondents and most of the respondents were in first year and second year college.
3. It revealed that the respondents have different opinion in the program depending on their age, gender, and course and year level. The older respondents might have more knowledge about delicacies than the younger respondent. Female respondent might be more familiar with the delicacies than the male respondents.
4. According to the respondents this program is helpful for the students and for those who want to learn cooking different delicacies. The program also helped them to become more familiar with all the regions in the Philippines through the trivia that the users get at the end of each level.
5. The study found that the delicacies in the Philippines would be easily to understand by applying it in-game. Most Filipino citizens are socializing thru mobile and applying it to Android Technology would make it more accessible since it is the most trending mobile platform.
6. The application gives some trivia around the Philippines. The study proven that the user can be aware of the Philippine delicacies. It concluded, Hunting Game for Philippine Delicacies Using Android Technology is a good source of information about Philippines delicacies in game concept.
7. It conclude in this study Hunting Game for Philippine Delicacies Using Android Technology is a good source of information about Philippines delicacies in game concept and attract tourist to visit tourist spots in the Philippines.

##### 4.3 Recommendations

Based on the findings and conclusions drawn, the following recommendations are hereby made:

The proponents suggested to those who want to improve this program to add more stages, difficulties, and add more replay ability to the game. The proponents also encouraged to add more recipes into the game since the proponents were able to put only 4 remaining recipes of all specialties in each region. The researcher also recommended adding a feature of having limited playable lives like in Candy Crush saga that the maximum playable lives is 5 and it will regenerate 1 life every 30 minutes, so that the Hunting Game for Philippine Delicacies Using Android Technology is more challenging and more complex. This will add more difficulty since the user cannot just guess the delicacy and the user should be more careful so that the user doesn't need to wait long time to try again. As of now the program is only available on Android 4.0 (Ice Cream Sandwich) to the Android 4.2.2 (Jelly Bean) version, the proponents would also recommend making the program compatible with all the Android versions and also to the Other Platforms like HTML 5, Windows 8, IOS, Linux Phone, and Firefox OS so it could be more flexible so anyone can play the game and learn from it.

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