

# Analysis Yummy App Site Functionality on Costs Use Method Function Point

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**Abstract**— This writing discusses the analysis of the Yummy App website from IDN Media or PT. Media Putra Nusantara. This website has the aim of helping users provide a reference for cooking menus that can be tried, especially during the Coronavirus pandemic conditions like today where most people do cooking activities at their respective homes. The Yummy App is available on the Google Play Store for android and the App Store for iOS. All existing analyzes in this study will be used for the development of the Yummy App application. This website is created using Android Studio, XCode & VSCode Android Studio for Android and XCode & VSCode for iOS. The development tools used are Git, Jira, AppCenter, Azure Pipeline, Confluence, Firebase & Google Data Studio. The programming language used uses Dart, Python, Golang & PHP and uses the Flutter and Laravel frameworks. From the database used, this website and application uses MySql / MariaDB, MongoDB & BigQuery, while from the look, this website and application uses Adobe XD, Adobe Illustrator, and Adobe Photoshop.

**Keywords**— Website, Android, iOS, Yummy App, Cooking Application.

## I. INTRODUCTION

The condition of the COVID-19 pandemic that has hit globally has also affected Indonesia. Some companies have even implemented a work from home work system to ensure a sense of security and comfort for their employees. For those who work from home, cooking is one of the most important ways to maintain the intake that enters the body.

The use of the internet to find information about recipes has been widely used by all groups, not only housewives, or household assistants. Not infrequently many people who cannot cook, can quickly learn to cook just by looking for information about cooking with the help of the internet.

By combining technology and people's desire to find information about recipes, the author wants to do research on the Yummy App site, which is a place to find information about various kinds of recipes in Indonesia, as well as various recipes from outside Indonesia.

The Yummy App site has various kinds of information and features that can help people find information ranging from cooking ingredients, recipes, calorie content, and total cooking costs. With hundreds of recipe databases, the Yummy App site has value for functionality to its users.

In making the Yummy App site, the author wants to measure and analyze the value of the Yummy App site functionality and compare it with the costs incurred in building the Yummy App site.

By measuring the value of the functionality of the site and comparing it with the costs incurred, we can find out whether the investment is appropriate and in accordance with the purpose of creating the Yummy App site.

In the creation of the Yummy App site, there are several steps taken, one of which is by making investment costs, both for initial creation, up to site maintenance operational costs. Therefore, these two factors are important to measure the value of functionality, which in the final stage will determine whether the value of the functionality of the features on the Yummy App site is in accordance with the investment costs incurred in building the Yummy App site.

## II. LITERATURE REVIEW

This sub-chapter will explain several similar studies related to the analysis of the effect of the quality of the Yummy App cooking application on user satisfaction in finding recipes using the function point method. Some studies that use function points are not all application-based. Some are website-based and also software systems used in education.

The first research came from the journal by Nur Rachmat from STMIK Global Informatics MDP Magister Informatics, Sriwijaya University. The thesis title of this study is "Software Size Estimation Using Function Point Analysis - A Case Study of Web-Based Learning and Testing Applications". This application is built with the PHP programming language based on Model View Controller (MVC) and runs on servers with the Windows operating system. In this study, it has been described in detail the estimation measurement method software based on Function Point Analysis (FPA). The FPA method has been applied to calculate the estimated size of the software in a web-based application developed by the author and the results of the calculations have been evaluated. This application includes a large application like an information system project. The results obtained show high accuracy when compared with previous studies. In the FPA method, there are 5 functions as measurement parameters for software, namely External Input (EI), External Output (EO), Internal Logical File (ILF), External Interface File (EIF) and External Inquiry (EQ). This research is a lesson for writers to develop other applications in the future. By calculating the estimated value in advance, it is possible to calculate the estimated resource required, work time and development costs so that failure and losses in the development process can be avoided. [1]

The second research came from a journal by Dewi Khairani from the Informatics Engineering Study Program,

Faculty of Science and Technology, Informatics Engineering lecturer at UIN Syarif Hidayatullah Jakarta entitled "Kaskus Study of Information System Measurement Using Function Points". Based on the research conducted by researchers in this paper, the researcher concluded that Function Points can be used to assess / measure a software. In its implementation, as a way to measure a software, FP requires professional judgment because it involves a very subjective assessment. To reduce the subjectivity factor in this study, researchers used FP calculations using the Guidelines from the Function Point International User Group (FPIUG). In measuring the SPMB Online Information System of UIN Syarif Hidayatullah Jakarta, the FP value was 108.12. This value can then be converted so that it can be derived for several measurement functions, such as the cost and time required to build the software. [2]

The third research comes from a journal by Yuni Widyaningtyas, Achmad Arwan, and Denny Sagita Rusdianto entitled "Calculation of Software Functional Complexity Measures with Function Point Metrics." In this journal, research aims to find a faster way to calculate the value of FP. Therefore, the FP calculation speed test is carried out by comparing the calculating speed manually and using an application. The function points calculation automation system (FP) is able to get FP values from DFD and ERD automatically by finding and calculating the value of FP elements (ILF, EIF, EI, EQ, EO) from parsed XML file data created using the Visual Paradigm tool and after tested on 12 test data, it was concluded that the FP calculation application was able to calculate 50 times faster than manual calculations. From 60 FP elements from 12 test data, it was concluded that the application was able to produce 52 elements according to manual calculations, namely 86.7% and 8 elements were not in accordance with manual calculations. [3]

The fourth research comes from the journal by Mohammad Rizqi Zamzami Alnobeta, Mochamad Chandra Saputra, Admaja Dwi Herlambang, entitled "Software Cost Estimation Using Function Point Method (Case Study: CV Aptikma Indonesia)". This study aims to explain the division of work scope using the Work Breakdown Structure and scheduling using the Gantt Chart, and using the Function Point method to estimate costs. Function Point First introduced by Albrecht in 1979, this method is based on estimating the functionality and complexity of a system. Analysis of the Function Point of a software is carried out based on five components of a software system, namely: External Inputs, External Outputs, Internal Logical Files, External Interfaces Files and External inquiries (Marchewka, 2003: 151). [4]

### III. RESEARCH METHOD

#### 1. Calculating Crude Function Point (CFP)

Crude Function Points (CFP) is to calculate the weighted value of Function Point components associated with the software to be created.

The components of the Function Point consist of 5 pieces, namely as follows:

- Type of input, related to the interface that the user does in entering data in the application.

- Output type, related to the output that the application produces for the user, which can be a printed report or displayed on the screen.

- Type Query / Search / View, related to querying for stored data.

- File / Table / Database type, related to data storage logic which can be a file or some sort of relational database.

- External Interface Type, relating to the form of data communication on other devices / machines.

The components for conducting a requirements specification analysis as mentioned above are divided into 5 parts as follows:

Number of user inputs = 35

Number of user outputs = 23

Number of user inquires = 55

Number of files = 52

Number of external interfaces = 4

TABLE 1. Component Types

TIPE KOMPONEN	LEVEL KOMPLEKSITAS									TOTAL CFP
	SEDERHANA			MENENGAH			KOMPLEKS			
	JML	BOBOT	POINT	JML	BOBOT	POINT	JML	BOBOT	POINT	
Tipe Input	10	3	30	20	4	80	5	6	30	140
Tipe Output	5	4	20	10	5	50	8	7	56	126
Tipe Query/Search/View	40	3	120	10	4	40	5	6	30	190
Tipe File/Table/Database	30	7	210	20	10	200	2	15	30	440
Tipe Interface External	1	6	6	3	7	21	0	10	0	27
	TOTAL									923

The weight values of each of the above components are provisions or constants made by the International User Group (IFPUG) Function Point.

#### 2. Calculating the Relative Complexity Adjustment Factor (RCAF)

The Relative Complexity Adjustment Factor (RCAF) can be used to calculate the total complexity weight of a software based on 14 characteristics.

TABLE 2. 14 Software Characteristics

NO	KARAKTERISTIK	BOBOT
1	Tingkat Kompleksitas Komunikasi Data	3
2	Tingkat Kompleksitas Pemrosesan Terdistribusi	3
3	Tingkat Kompleksitas Performance	5
4	Tingkat Kompleksitas Konfigurasi	2
5	Tingkat Frekuensi Penggunaan Software	5
6	Tingkat Frekuensi Input Data	3
7	Tingkat Kemudahan Penggunaan Bagi User	5
8	Tingkat Frekuensi Update Data	1
9	Tingkat Kompleksitas Prosesing Data	3
10	Tingkat Kemungkinan Penggunaan Kembali/Reusable Kode Program	3
11	Tingkat Kemudahan Instalasi	3
12	Tingkat Kemudahan Operasional Software (Backup, Recovery, dll)	2
13	Tingkat Pembuatan Software Untuk Multi Organisasi/Perusahaan	3
14	Tingkat Kompleksitas dalam mengikuti perubahan/fleksibel	4
	TOTAL	45

The complexity rating has a scale of 0 to 5.

- 0 = No Effect
- 1 = Incidental
- 2 = Moderate
- 3 = Average
- 4 = Significant
- 5 = Essential

These characteristics are provisions or constants made by the Function Point International User Group (IFPUG).

### 3. Calculating Function Points (FP)

Function Point is the process of doing calculations to get the Function point value from the software to be built.

The formula of the Function Point:

$$FP = CFP \times (0.65 + 0.01 \times RCAF)$$

Where the numbers 0.65 and 0.01 are provisions or constants made by the Function Point from the software being built.

So, the calculation is as follows:

$$\begin{aligned}
 FP &= CFP \times (0.65 + 0.01 \times RCAF) \\
 &= 923 \times (0.65 + (0.01 \times 45)) \\
 &= 1015.3
 \end{aligned}$$

The calculation of the value of the Function Point for the manufacture of this Yummy App cooking application is 1015.3 FP.

### 4. Conversion of Function Points into Costs

To convert the Function Point values into costs, some data is needed that must be calculated with the value of the development price itself. The metric that will be used is the type of project which is divided into several sections, such as Product, UI / UX, Front End, Back End, and QA Tester.

TABLE 3. Function Point Value Rate Table

NO	TIM	TARIF/FP	JAM/FP	ALOKASI SDM
1	Product Development	IDR 55.000	1	1
2	UI/UX	IDR 37.500	1	2
3	Front-end	IDR 44.000	1	1
4	Back-end	IDR 49.000	1	2
5	QA Tester	IDR 45.000	1	1

#### A. Conversion Function Point Product Development

The result of the Human Resource Information System management is 1015.3 FP with a rate of IDR / FP for "Product Development Team" is Rp. 55,000. Then it can be produced as follows.

- Estimated Cost of Software Development: IDR 55,000 x 1015.3 = IDR. 55,841,500

- Software Production Specific Estimation: 1 Hour x 1015.3 = 1015 Hours or 127 Working Days (Assuming 1 Working Day with 8 Hours) or 5 Months (Assuming 1 month 25 Working Days)

#### B. Conversion of UI / UX Function Points

The result of managing the Human Resources Information System is 1015.3 FP with a rate of IDR / FP for "UI / UX" is Rp. 37,500. Then it can be produced as follows.

- Estimated Cost of Software Development: Rp. 37,500 x 1015.3 = Rp. 38,073,750

- Software Production Specific Estimation: 1 Hour x 1015.3 = 1015 Hours or 127 Working Days (Assuming 1 Working Day with 8 Hours) or 5 Months (Assuming 1 month 25 Working Days)

#### C. Front-end Function Point Conversion

The result of managing the Human Resources Information System is 1015.3 FP with a rate of IDR / FP for "Front End Team" is Rp. 44,000. Then it can be produced as follows.

- Estimated Cost of Software Development: Rp. 44,000 x 1015.3 = Rp. 44,673,200

- Software Production Specific Estimation: 1 Hour x 1015.3 = 1015 Hours or 127 Working Days (Assuming 1 Working Day with 8 Hours) or 5 Months (Assuming 1 month 25 Working Days)

#### D. Convert Function Point Back-end

The result of managing the Human Resources Information System is 1015.3 FP with a rate of IDR / FP for "Back End" is Rp. 49,000. Then it can be produced as follows.

- Estimated Software Development Cost: IDR 49,000 x 1015.3 = IDR. 49,749,700

- Software Production Specific Estimation: 1 Hour x 1015.3 = 1015 Hours or 127 Working Days (Assuming 1 Working Day with 8 Hours) or 5 Months (Assuming 1 month 25 Working Days)

#### E. Conversion of Function Point QA Tester

The result of managing the Human Resources Information System is 1015.3 FP with a rate of IDR / FP for "QA Tester" is Rp. 45,000. Then it can be produced as follows.

- Estimated Cost of Software Development: IDR 45,000 x 1015.3 = IDR. 45,688,500

- Software Production Specific Estimation: 1 Hour x 1015.3 = 1015 Hours or 127 Working Days (Assuming 1 Working Day with 8 Hours) or 5 Months (Assuming 1 month 25 Working Days)

## IV. RESEARCH RESULTS AND DISCUSSION

### 1. Overview of Research Objects

Yummy App is a recipe application that can be downloaded on the Play Store for free and does not take up much of our smartphone memory (only 15 Mb). This application has many unique features which are of course useful. In addition, users can get rewards in the form of Yummy Points which can be exchanged for money.

Like any application, users must first register an account on the Yummy App. Registration can use a Facebook account or a Google account. Enter an active phone number because there will be a verification process. If registration is successful, on the 'Account' menu, it will look like the picture.

There are several pieces of information that will make it easier to use the Yummy App, including:

#### A. Title of Recipe

The title can help users find references to the menu that is being searched for. The recipe titles in the Yummy App application are indeed divided into two categories, namely the titles of recipes made by the Yummy App internal chef and



also recipes from the community. Community recipes are recipes written by Yummy App users themselves.

**B. Cooking ingredients**

Cooking ingredients can help users prepare everything before doing the cooking process. With this information, the excess material can be overcome. So, the ingredients you buy will match the portion of the dish that Yummy App users want to cook.

**C. How to cook**

This part of how to cook is the most important information. Users can see all the ways to cook various dishes with just five steps. This makes it easier for users who are new to cooking or who are just learning to cook.

**D. Photo of the recipe**

Recipe photos allow users to understand the final result of the dish. The Yummy App provides information in the form of photos so that users can better understand the visuals of cooking methods that have been previously shared.

**E. Cooking videos**

Cooking videos from the Yummy App cooking app can only be displayed by recipes cooked directly by the Yummy App Chef. By going through the shooting process, the video results are more curated and will produce high quality videos.

Apart from the information above, there are several advantages and benefits that will be obtained by users, including:

**A. Yummy point**

The points that have been collected can be exchanged for your account balance. Make sure you have added a bank account first, OK! The minimum number of points that can be exchanged / redeemed is 2500 Yummy Points.

**B. Referral code**

Share this code with as many friends on social media as possible to get 70 Yummy points (equivalent to Rp. 7,000) for each friend who is successfully invited to download this application and register using your referral code. Every friend who registers using your referral code will also get 30 Yummy points (equivalent to Rp. 3000). The following terms and conditions can be read in more detail on the Yummy App.

**C. My Recipe**

In this feature, users will know the status of recipes that have been uploaded to the Yummy App. There are three categories of recipe status: approved recipes (the recipes have been approved by Chef Yummy to appear on the Yummy app), reviewed recipes (recipes are still being reviewed by Chef Yummy), and revised recipes (uploaded recipes have been reviewed by Chef Yummy but there are several revision before approval).

**D. Favorite Recipes**

Your favorite recipes will be stored neatly and can be read again at any time. If you feel it is not suitable, you can delete the recipe from the list of favorite recipes.

**2. Characteristics of Research Subjects**

The subjects of this study were employees who worked at PT. Media Putra Nusantara. Some of the subject components

are workers who work as Yummy App developers. This includes Mobile Engineers (Android and iOS), UI / UX Designer, Product Manager, QA Tester, Front End and Back End Developers. Researchers make research based on the average income they get and calculate the number of developments and the profits generated from the work of making the Yummy App application.

**V. CONCLUSION AND SUGGESTIONS**

**1. Conclusion**

From the discussion that has been carried out in the previous chapters, it can be concluded that the calculation using the function point method can help provide appropriate recommendations from the developer's income and also the working time of the developer himself. Increasing the number of developers results in faster and more efficient results.

Apart from that application development is needed to provide user experience so that they can be more comfortable using the Yummy App application. Therefore it is necessary to add resources so that the function point values are in line with expectations.

**2. Suggestions**

The creators of this application are always doing research to users from various backgrounds to provide a better experience in the future. Therefore, suggestions from researchers for this application, based on the amount or value calculated using this function point method, the need for additional resources in the creation and development of applications and websites, can make users more comfortable and will easily get new users.

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