DEVELOPING WEB APPLICATION FOR ISLAMIC BANKING MODULE USING ITERATIVE INCREMENTAL METHOD AND LARAVEL FRAMEWORK FOR DISTRIBUTION ZISWAF FUND TO SME'S

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Abstrak

Bank syariah menawarkan dana untuk usaha kecil dan menengah. Ini membantu mengurangi kemiskinan dan meningkatkan kemewahan bangsa. Sayangnya, beberapa bisnis tidak dapat mencapai pendanaan karena kurangnya pengetahuan dan karena ada kekurangan sistem yang dapat memberikan informasi yang relevan bagi bank dan UKM. Set sistem yang disediakan oleh proyek akhir ini seperti: sistem crowdfunding, sistem pelaporan, sistem monitoring mikro, dan mendukung keputusan sistem bantuan UKM dan lembaga keuangan mendapatkan koneksi dan berkolaborasi secara efektif. Penelitian ini adalah tentang sistem pengambilan keputusan pendukung yang bertujuan untuk membantu bank-bank Islam untuk lebih memahami proyek yang UKM yang dana senilai dan membuat keputusan pendanaan berdasarkan informasi yang diberikan.

Kata kunci : Islamic Banking, Decision Support, SMEs

Abstract

Islamic banks offer funding to small and medium enterprises. It helps decreasing the poverty and improves opulence of the nation. Unfortunately, some businesses cannot reach funding because of lack of knowledge and because there are lack of systems that can provide relevant information for both banks and SMEs. The set of systems provided by this Final project such as: crowdfunding system, reporting system, micro monitoring system, and decision support system help SMEs and financial institutions get a connection and collaborate effectively. This research is about a decision supporting system which has purpose to help Islamic banks to better understand which SME projects are worth funding and make funding decisions based on given information.

Keywords: Islamic Banking, Decision Support, SMEs

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1. **Preliminary**

   Banking was a sector that became the foundation of economic development of the people in Indonesia. Micro, small and medium enterprises (SMEs) are one of the main drivers of the economics. The bank as a business entity with an orientation on achieving profit (profit-oriented) and the government as an agent of diploma provides an opportunity for those who came from the community and return to the community. In Indonesia, there are two types of banks, namely Conventional Banking and Islamic Banking. Islamic Bank helped provide support for economic development in Indonesia through customer financing and facilitating banking services to support the economic activities of the people (Dendawijaya, 2001).

   Islamic Bank serves as an intermediary institution, which collects funds from the public and distribute them back to the community in the form of financing. Financing is a funding provided to other parties to support the planned investment (Mohammed, 2005).

   According to Article 2 of the Law of Islamic Banking, bank conducts its business activities based on Islamic principles, economic democracy, and the precautionary principle. Under article 1, paragraph (13) of Law No. 10 of 1998, Islamic principles can be interpreted as agreement rules based on Islamic law between banks and other parties

to deposit funds and/or finance business activities or other activities stated in accordance with sharia, other financing based on the principle of profit sharing (Mudharabah), financing is based on the principle of equity (musharakan), the principle of buying and selling goods with profit (murabaha), or the financing of capital goods with the principle of the lease pure without options (Ijarah), or by the choice of transfer of ownership of goods leased from the bank by another party (Ijara waiqtina). From various sources it can be concluded that the precautionary principle is a risk management through the implementation of laws and regulations that apply consistently. (Yahman, Usanti, 2001).

2. Literature Review and Methodology

2.1. SME

SME development is embedded in the third pillar of the ASEAN Economic Community (AEC) Blueprint, namely, equitable economic development, and its development would directly contribute to achieving the implementation of the third pillar. SMEs in the region, however, are reported to have difficulties in access to finance, technology, and competitive markets. Entrepreneurship, compliance with standards, marketing and management are also some of the problems faced by SMEs in ASEAN.

Usually, SMEs are in a much weaker position than large firms to deal with the vicissitudes of economic volatility. They will be forced to respond to these developments by implementing risk management strategies, speeding up customer payments, focusing on the retention of skilled staff where possible and critical for high tech SMEs, cutting costs, diversifying into new markets, and improving their corporate governance. These, however, are not likely to be an adequate response and will need to be supplemented by appropriate policies aimed at addressing these vulnerabilities. As such, an appropriate SME policy framework is fundamental for the growth of the private sector, in particular SMEs, as is the need to ensure that the adverse consequences of external or exogenous disturbances emanating from regional trade partners have a minimal disruptive impact on domestic and regional economies.

It has been widely recognized that both government and market failures such as excessive regulations, red tapes, monopoly power, asymmetric information, coordination failures, poor contract enforcement, free riders and other externalities exist. These problems could hinder growth prospects and put SMEs in a more disadvantageous position compared with larger firms. Governments that pursue policies for public interest correct these failures by providing level-playing fields for all businesses and protecting the public from business abuses through regulations and appropriate policies.

2.2. ZISWAF

Islamic banking is one of ZISWAF's contributors to the community. The implementation of ZISWAF has been the function the Islamic banking as the social agent and the financial intermediary as well. Applying and integrating ZISWAF (QS59:7; QS43:32) funds into the system could boost the sustainability index faster. With its coverage across Indonesia. Islamic banking has advantage of being able to interact with the community directly'. In addition, its closeness with the customers also presents Islamic banking the ability to define the community needs (see box 2 section IV.1.). Islamic banking's input about this market needs will be really insightful for the ZISWAF organization to establish the effective ZISWAF distribution.

2.3. Islamic Banking

Banking activity that is consistent with the principles of sharia (Islamic law) and its practical application through the development of Islamic economics. As such, a more correct term for Islamic banking is sharia compliant finance.

Sharia prohibits acceptance of specific interest or fees for loans of money (known as riba, or usury), whether the payment is fixed or floating. Investment in businesses that provide goods or services considered contrary to Islamic principles (e.g. pork

or alcohol) is also haraam ("sinful and prohibited"). Although these prohibitions have been applied historically in varying degrees in Muslim countries/communities to prevent non-Islamic practices, only in the late 20th century were a number of Islamic banks formed to apply these principles to private or semi-private commercial institutions within the Muslim community

2.4. Laravel Framework

Laravel is a free, open-source PHP web framework, created by Taylor Otwell and intended for the development of web applications following the model–view–controller (MVC) architectural pattern. Some of the features of Laravel are a modular packaging system with a dedicated dependency manager, different ways for accessing relational databases, utilities that aid in application deployment and maintenance, and its orientation toward syntactic sugar.

The following features serve as Laravel's key design points:

• Modular packaging system with bundled features already available for easy addition to applications. Laravel uses Composer as a dependency manager to add framework-agnostic and Laravel-specific PHP packages available from the Packagist repository.

• Eloquent ORM (object-relational mapping) is an advanced PHP implementation of the active record pattern, providing at the same time internal methods for enforcing constraints on the relationships between database objects.

• Query builder provides a more direct database access alternative to the Eloquent ORM. Instead of requiring SQL queries to be written directly, Laravel's query builder provides a set of classes and methods capable of building queries programmatically. It also allows selectable caching of the results of executed queries.

• Application logic is an integral part of developed applications, implemented either by using controllers or as part of the route declarations.

• Reverse routing defines a relationship between the links and routes, making it possible for later changes to routes to be automatically propagated into relevant links.

• Restful controllers provide an optional way for separating the logic behind serving HTTP GET and POST requests.

• Class auto loading provides automated loading of PHP classes without the need for manual maintenance of inclusion paths. On-demand loading prevents inclusion of unnecessary components, so only the actually used components are loaded.

• View composers serve as customizable logical code units that can be executed when a view is loaded.

• Blade templating engine combines one or more templates with a data model to produce resulting views, doing that by transpiling the templates into cached PHP code for improved performance. Blade also provides a set of its own control structures such as conditional statements and loops, which are internally mapped to their PHP counterparts.

• IoC containers make it possible for new objects to be generated by following the inversion of control (IoC) principle, in which the framework calls into the application- or task-specific code, with optional instantiating and referencing of new objects as singletons.

• Migrations provide a version control system for database schemas, making it possible to associate changes in the application's codebase and required changes in the database layout.

• Database seeding provides a way to populate database tables with selected default data that can be used for application testing or be performed as part of the initial application setup.

• Unit testing contains unit tests that detect and prevent regressions in the framework. Unit tests can be run through the provided artisan command-line utility.

• Automatic pagination simplifies the task of implementing pagination, replacing the usual manual implementation

approaches with automated methods integrated into Laravel.

• Form request serves as the base for form input validation by internally binding event listeners, resulting in automated invoking of the form validation methods and generation of the actual form

2.5. PHP

PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. Originally created by Rasmus Lerdorf in 1994. PHP originally stood for Personal Home Page, but it now stands for the recursive backronym PHP: Hypertext Preprocessor.

PHP is a server side language. Which means is that all of the processing of the PHP code takes place on the server. By the time the data get's to the user's browser, there is no PHP left, only the HTML remains.

It can be used to create dynamic web page. A dynamic Web page interacts with the user, so that each user visiting the page sees customized information. PHP can also be used to create dynamic web pages that are generated from information accessed from a MySQL database. PHP commands are can embedded within a standard HTML page.

2.6. Iterative Incremental Development

Iterative and Incremental development is any combination of both iterative design or iterative method and incremental build model for software development.

The basic idea behind this method is to develop a system through repeated cycles (iterative) and in smaller portions at a time (incremental), allowing software developers to take advantage of what was learned during development of earlier parts or versions of the system. Learning comes from both the development and use of the system, where possible key steps in the process start with a simple implementation of a subset of the software requirements and iteratively enhance the evolving versions until the full system is implemented. At each iteration, design modifications are made and new functional capabilities are added.

The procedure itself consists of the initialization step, the iteration step, and the Project Control List. The initialization step creates a base version of the system. The goal for this initial implementation is to create a product to which the user can react. It should offer a sampling of the key aspects of the problem and provide a solution that is simple enough to understand and implement easily. To guide the iteration process, a project control list is created that contains a record of all tasks that need to be performed. It includes such items as new features to be implemented and areas of redesign of the existing solution. The control list is constantly being revised as a result of the analysis phase.

The iteration involves the redesign and implementation of iteration is to be simple, straightforward, and modular, supporting redesign at that stage or as a task added to the project control list. The level of design detail is not dictated by the iterative approach. In a light-weight iterative project the code may represent the major source of documentation of the system; however, in a critical iterative project a formal Software Design Document may be used. The analysis of an iteration is based upon user feedback, and the program analysis facilities available. It involves analysis of the structure, modularity, usability, reliability, efficiency, & achievement of goals. The project control list is modified in light of the analysis results.

2.7. Conceptual Model

This system pulls data report business development of Micro Monitoring System and provide some parameters to support the decision-making on funding to the SMEs potential. After selecting SMEs Islamic banks that deserve funding, the bank will send data to the approval of the funding of Micro Monitoring System, and record all forms of transactions between banks and SMEs.
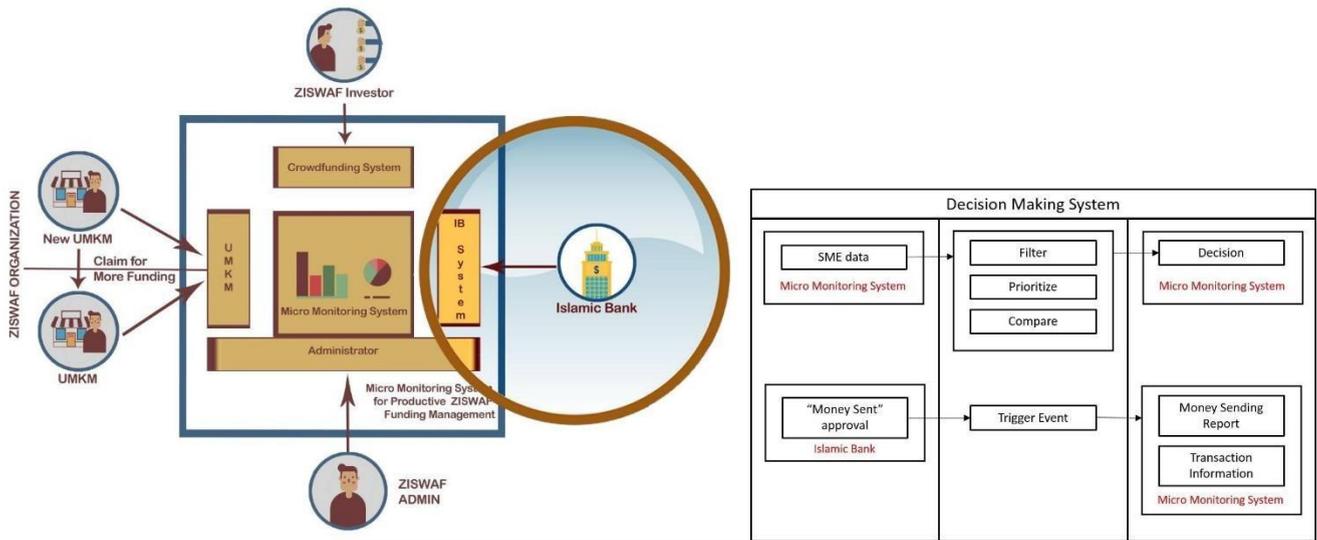
Figure 2.2 Conceptual Model

3. Study

3.1. Design System

3.1.1. Use Case Diagram
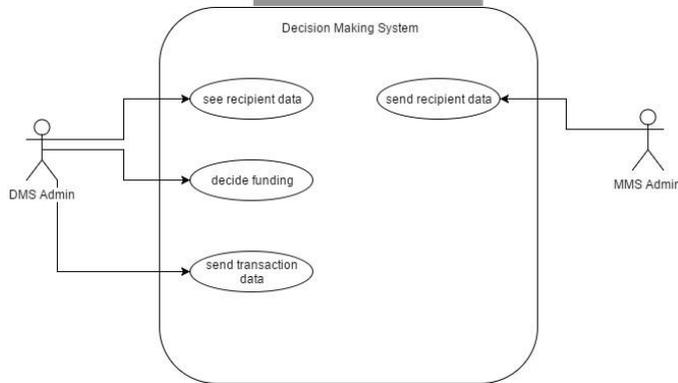
Use Case Diagram created based on business process.

Figure 1 Use Case Diagram of Decision Supporting

3.1.2. Class Diagram

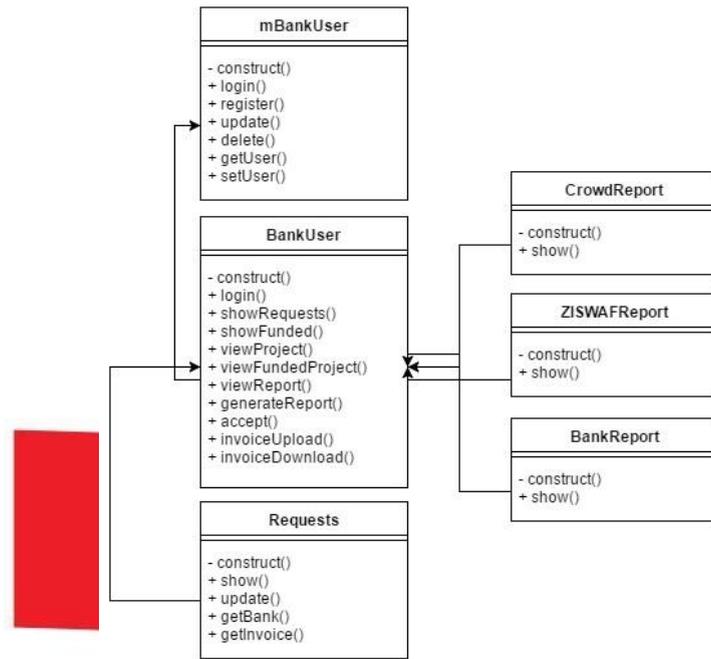Class diagram is used to capture the function in the class of project

Figure 2 Class Diagram

4. Implementation

Interface of Ziswaf.org are as follows:

a. Login Page

Figure 4.1 Login Page Interface

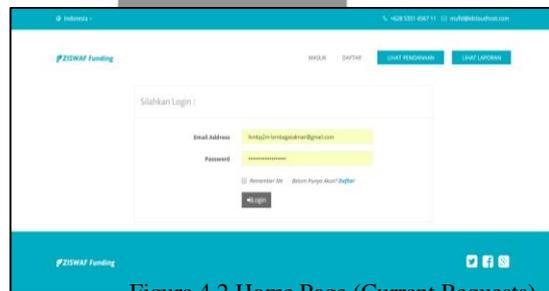**b. Home Page (Current Requests)**

Figure 4.2 Home Page (Current Requests)

c. Home Page (Funded Requests)

Figure 4.3 Home Page (Funded Projects)
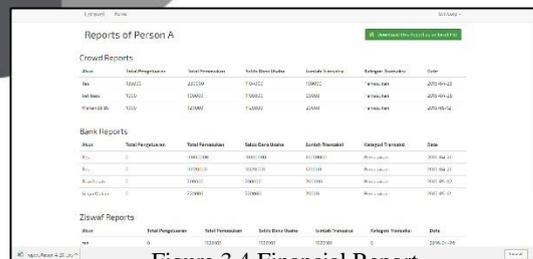
d. Financial Report

Figure 3.4 Financial Report

e. Project Detail

f. Funded Project Detail

Figure 4.5 Project Detail

Figure 4.6 Funded Project Detail

g. Invoice Upload

Figure 4.7 Invoice upload page

5. User Validation

Tester describes this application as easy to use, and understandable after the first try

The Conclusion of that result is this application can be adopt to the market.

6. Conclusion

Conclusions of the system are as follows :

    a. The function and all the feature is successfully applied to deploy Decision Supporting applications that can address the needs of Islamic Bank.

    b. Based on the results of the feedback that has been analyzed, DSS has made quite able to meet the needs of users in terms of access and control financial information.

Figure 4.1 User Validation Result

References :

Carroll, A. (1999). Corporate Social Responsibility; Evolution of Definition Construct. Business and Society.

Collins English Dictionary – Complete & Unabridged. (2012). William Collins Sons & Co.

Deemer, P., Benefield, G., Larman, C., & Vodde, B. A. (2012). A Lightweight Guide to the Theory and Practice of Scrum: Version 2.0.

El Diwany, T. (2003). Is Islamic banking Islamic? Retrieved from Islamic Research Foundation International, Inc.: http://www.irfi.org/articles/articles_301_350/is_islamic_banking_islamic. htm

Flanagan, D. (2011). JavaScript: The Definitive Guide (6th ed.).

Islamic Finance: Instruments and Markets. (2010). Bloomsbury Information Ltd.

Khan, A. A. (n.d.). Sharia Compliant finance. Retrieved from HALAL MONK: http://www.halalmonk.com/ajaz-ahmed-khan-

sharia-compliant-finance

Murabahah Goes Mainstream. (2007). Retrieved from Iran Daily:
https://web.archive.org/web/20071102052436/http://www.iran-daily.com/1386/2860/html/focus.htm

Tahir, M. (2011). Permissibility of Establishing Waqf Bank in Islamic Law. Malaysia.

The Declining Balance Co-ownership Program. (2012). Guidance Residential, LLC.

Yasir, M. (2010). MODEL PELAKSANAAN CSR BANK SYARIAH: KAJIAN EMPIRIS PEMBIAYAAN MIKRO BAITUL MAL ACEH.

Rammal, H. G. and Zurbruegg, R. (2007). Awareness of Islamic Banking Products Among Muslims: The Case of Australia. Journal of Financial Services Marketing, 12(1), 65–74.

Saeed, A. (1996). "Islamic Banking and Interest: A Study of the Prohibition of Riba and its Contemporary Interpretation". Leiden, Netherlands: E.J.Brill.

Yousef, Tarik M. (2004). "The Murabaha Syndrome in Islamic Finance: Laws, Institutions, and Politics". In Henry, Clement M.; Wilson, Rodney. Edinburgh: Edinburgh University Press,. Retrieved 5 August 2015.

Dr. Alistair Cockburn (May 2008). "Using Both Incremental and Iterative Development" STSC CrossTalk (USAF Software Technology Support Center)

Arda Kılıçdağı and H. İbrahim Yilmaz (July 2014). "Laravel Design Patterns and Best Practices"

PHP Server-Side Scripting Language. (2007). Retrieved from Indiana University: http://webmaster.iu.edu/tools-and-guides/programming-languages/php.phtml

Usmani, Taqi. An Introduction to Islamic Finance. Creative Commons Attribution-No Derivative Works 3.0. p. 65. Retrieved 4 August 2015.