DEVELOPMENT OF IOS AMIKOM ONLINE EXAM APPLICATION USING MVVM ARCHITECTURE

THESIS

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UNIVERSITAS AMIKOM YOGYAKARTA

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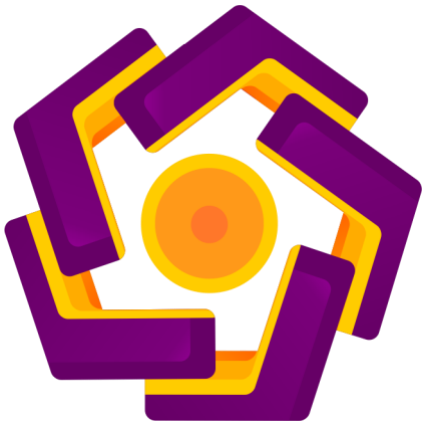
DEVELOPMENT OF IOS AMIKOM ONLINE EXAM APPLICATION USING MVVM ARCHITECTURE

THESIS

to fulfil the requirements for a Bachelor's degree
in the Informatics study program



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APPROVAL

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DEVELOPMENT OF IOS AMIKOM ONLINE EXAM APPLICATION USING MVVM ARCHITECTURE

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on December 10th 2021

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on January 25th 2022

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DECLARATION

I, the undersigned bellow, states that, this thesis is my own work (ORIGINAL) and the contents of this thesis have never been applied by any other person to receive an academic degree at a certain education institution, and as far as I know, there are no works or thoughts which have been written and/or published by anyone, except those in writing which are listed in this manuscript and which are mentioned in the reference list.

Anything that applies to the manuscripts and works that have been made is my own responsibility.

Yogyakarta, August 16th 2022

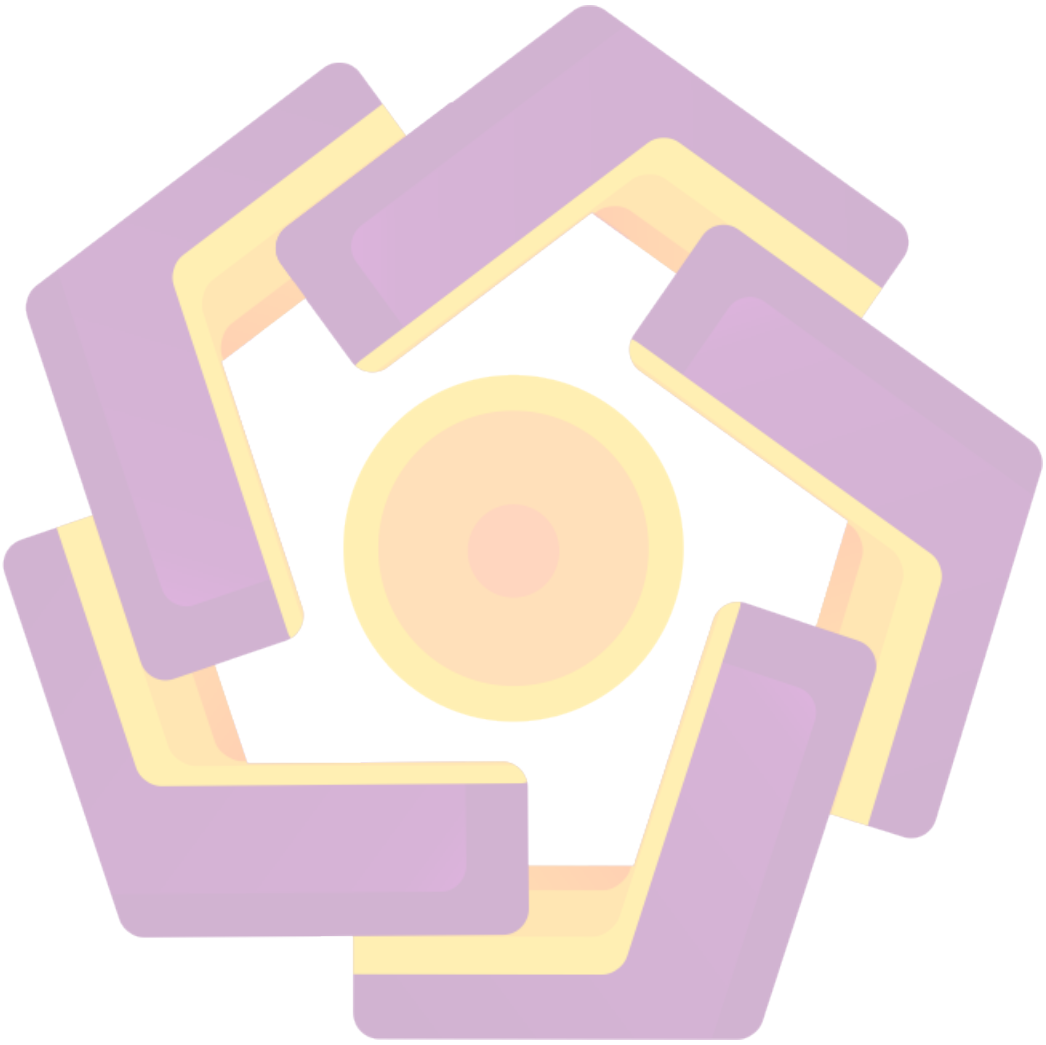
Dzulfikar Ali Maskur

17.61.0110

MOTTO

“We did not create the heavens and earth and what is between them except in truth and a specified term. But those who disbelieve, from that of which they are warned, are turning away.”

46:3



DEDICATION

I dedicate this thesis to all parties who are directly or indirectly involved in the process of writing this thesis.

1. Allah Subhanahu wa ta'ala who has given mercy and guided me throughout my life.
2. My parents who always pray for me to succeed in realizing what I aspire to, and who have guided and helped me to this day.
3. Erik Hadi Saputra, S.Kom, M.Eng. as my guardian lecture.
4. Arif Akbarul Huda, S.Si, M.Eng. as an advisor who has guided and provided advice and time during the making of this thesis.
5. Dr. Arief Setyanto, S.Si., M.T. who provides me an opportunity to develop Amikom Online Exam applications based on iOS.
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7. Bayu, Adit, and Sandy, my friends who have helped me a lot during the study process.
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I wrote this thesis to complete my undergraduate studies (S1) at the Informatics study program, Faculty of Computer Science, Amikom University, Yogyakarta. In addition, it is also a proof that the student has completed the undergraduate program and is seeking a Bachelor's degree in Computer Science. With the completion of this thesis, I take this opportunity to thank to:

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5. Dr. Arief Setyanto, S.Si., M.T. who provides me an opportunity to develop Amikom Online Exam applications based on iOS.
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May Allah SWT give more rewards to all who have helped me to finish this thesis. For further improvement, suggestions and constructive criticism are welcome and thank you. Hopefully this thesis can be useful for me and all of us.

Yogyakarta, August 16th 2022

Dzulfikar Ali Maskur

TABLE OF CONTENT

TITLE ..... **I**

COVER ..... **I**

APPROVAL ..... **II**

VALIDATION ..... **III**

DECLARATION ..... **IV**

MOTTO ..... **V**

DEDICATION ..... **VI**

ACKNOWLEDGEMENTS ..... **VII**

LIST OF TABLES ..... **XI**

LIST OF FIGURES ..... **XII**

ABSTRACT ..... **XIII**

CHAPTER I INTRODUCTION **1**

1.1 BACKGROUND 1
1.2 PROBLEMS 3
1.3 PROBLEMS LIMITATION 3
1.4 RESEARCH PURPOSE 3
1.5. RESEARCH BENEFITS 3
1.6 RESEARCH METHODOLOGY 4
1.6.1 Data Collection Method 4
1.6.2 Analysis Methodology 4
1.6.2 Development Methodology 5
1.6.3 Software Architecture 5
1.6.4 System Design 5
1.6.5 Testing 5
1.6.6 Systematics Writing 5

CHAPTER II RELATED WORKS **7**

2.1 LITERATURE REVIEW 7
2.2 IOS 13
2.2.1 Swift 13
2.2.2 UIKit 14
2.2.3 Xcode 15
2.2.4 Architecture Patterns 16
2.2.6 SWOT Analysis 19
2.2.7 System Requirements Analysis 20
2.2.8 Waterfall Methodology 20
2.2.7 API 22
2.2.8 UML 23

CHAPTER III RESEARCH METHODOLOGY **27**

3.1 GENERAL REVIEW 27
3.2 SYSTEM ANALYSIS 27
3.2.1 SWOT Analysis 28
3.2.2 System Requirements Analysis 30
3.2.3 System Feasibility Analysis 31
3.2.4 MVVM Architecture 32
3.2.3 Demystifying the API 34

3.2.5 User Interface Design 52

CHAPTER IV IMPLEMENTATION AND DISCUSSION 53

4.1 SYSTEM IMPLEMENTATION 53
4.1.1 Base API Service 53
4.1.2 Repository 55
4.1.3 View Model 58
4.1.4 Model 63
4.1.5 View Controller 66
4.1.6 User Interface 71
4.2 RESULT & EVALUATION 82
4.2.1 Evaluation Phase 82
4.2.2 Performance Testing 83

CHAPTER V CONCLUSION 86

5.1 CONCLUSION 86
5.2 SUGGESTION 87

REFERENCES 88

LIST OF TABLES

Table 2. 1 Comparison Table of Previous Research 10
Table 2. 2 Use Case Diagram 24
Table 2. 3 Activity Diagram 26
Table 3. 1 SWOT Analysis Both Internal and External Factors 29
Table 3. 2 Software Used 32
Table 3. 3 Base URL API Configuration 34
Table 3. 4 Login Authentication 34
Table 3. 5 Profile Header 35
Table 3. 6 Edit Profile Header 37
Table 3. 7 Face Verification Header 38
Table 3. 8 Get Question Header 40
Table 3. 9 Submit Photo Header 41
Table 3. 10 Submit Audio Header 42
Table 3. 11 Submit Exam Header 43
Table 4. 1 Base API Service 53
Table 4. 2 Repository 56
Table 4. 3 View Model 58
Table 4. 4 Model 64
Table 4. 5 View Controller 66
Table 4. 6 Table Test Cases 82
Table 4. 7 Functional and Performance Test Result 83

LIST OF FIGURES

Figure 2. 1 The Classic MVC 16
Figure 2. 2 The Apple's MVC Concept 17
Figure 2. 3 MVVM Design Pattern 18
Figure 2. 4 API Working Systems 22
Figure 3. 1 MVVM Architecture 33
Figure 3. 2 Success Login Response 35
Figure 3. 3 Success Profile Response 36
Figure 3. 4 Success Edit Profile Response 38
Figure 3. 5 Success Face Verification Response 39
Figure 3. 6 Success Question List Response 40
Figure 3. 7 Success Submit Photo Response 41
Figure 3. 8 Success Submit Audio Response 42
Figure 3. 9 Success Submit Exam Response 45
Figure 3. 10 Use Case Diagram 45
Figure 3. 11 Login Activity Diagram 46
Figure 3. 12 Exam History Activity Diagram 47
Figure 3. 13 Exam Activity Diagram 48
Figure 3. 14 Setting Activity Diagram 50
Figure 3. 15 Profile Activity Diagram 51
Figure 3. 16 User Interface Design 52
Figure 4. 1 Login Screen 71
Figure 4. 2 Home Screen 72
Figure 4. 3 Edit Profile Screen 73
Figure 4. 4 Access Request Screen 74
Figure 4. 5 Face Verification 75
Figure 4. 6 Face Verification 76
Figure 4. 7 Exam Information Screen 77
Figure 4. 8 Exam Process Screen 78
Figure 4. 9 Exam Result Screen 79
Figure 4. 10 Exam History Screen 80
Figure 4. 11 Setting Screen 81

ABSTRACT

The application of online-based entrance exams with smartphone media at Amikom University of Yogyakarta is one of the innovations made by the campus to streamline time and costs for prospective students. Currently, the Amikom University Yogyakarta entrance exam application is only limited to Android-based devices.

However, in Indonesia itself, there are two operating systems that are most widely used, namely Android and iOS, of which the iOS-based entrance exam application is not yet available. Thus, the authors in this study developed an iOS-based entrance exam application with a Model View View-Model (MVVM) architecture.

MVVM is used to help develop application structure by separating business logic and User Interface (UI). The results of this study state that MVVM has good performance regarding CPU usage, memory usage, and execution time. Although in some heavy processes such as the Face Recognition feature this architecture consumes more memory with an average of 31.67 mb.

Keywords *: Software Architecture, iOS, MVVM, Online Exam Application*