

LIST OF FIGURES

Figure 1.1 Indonesia Digital Landscape	1
Figure 1.2 Fintech Business Overview	2
Figure 2.1 Fintech Ecosystem	8
Figure 2.2 One Factor Authentication (1FA) Scheme	9
Figure 2.3 Two Factor Authentication (2FA) Scheme	10
Figure 2.4 Enrollment Process on Biometric Authentication	11
Figure 2.5 Global, Minutiae, and Sweat pore Fingerprint	12
Figure 2.6 Fingerprint Preprocessing	13
Figure 2.7 KNN Classification	17
Figure 3.1 Fintech Service Regulation	19
Figure 3.2 Exemption Classification	22
Figure 3.3 Google Standards for Biometric Unlocking of Android Devices	23
Figure 3.4 Impact of Ageing on Accuracy	24
Figure 4.1 Flowchart	28
Figure 4.2 Login Authentication Flow	30
Figure 4.3 Enrollment and Verification Process	30
Figure 4.4 Password Authentication Flow	31
Figure 4.5 Biometric Authentication Flow	31
Figure 4.6 Preprocessing	33
Figure 4.7 Image Resolution	33
Figure 4.8 Greyscale Image	33
Figure 4.9 KNN Classification Flow	35
Figure 4.10 One Factor Authentication Flow	36
Figure 4.11 Two Factor Authentication Flow	36
Figure 4.12 Interface for Authentication	37
Figure 4.13 Interface Password for Authentication	38
Figure 4.14 Interface Password for Authentication (2)	38
Figure 4.15 Explorative Qualitative Approach	39
Figure 4.16 Distribution of Confidence Interval	41
Figure 5.1 Authentication Performance on Processing Time	42
Figure 5.2 Authentication Performance on Accuracy	45
Figure 5.3 Authentication Performance on Processing Memory Usage	46
Figure 5.4 Authentication Performance on Complexity	47
Figure 5.5 Two Factor Authentication Flows	48
Figure 5.6 Comparation of Authentication Processing Time	51
Figure 5.7 Comparation of Authentication Processing Memory Usage	51
Figure 5.8 Comparation of Authentication Complexity	52

Figure 5.9 Percentage of Fintech Service Users	53
Figure 5.10 Fintech Service Users by Demographics, Occupation and Education	53
Figure 5.11 Total of Monthly Expenses	54
Figure 5.12 Confidence Level of Ages	54
Figure 5.13 Reason for Using Fintech Services	55
Figure 5.14 Data Security Confidence and Data Retention	55
Figure 5.15 Security Criteria Expected by Fintech Service Users	56
Figure 5.16 The User 's Willingness to Replace the Device According to the Expected Safety	56
Figure 5.17 The User's Willingness to Take the Time to Verify According to the Type of Authentication	57
Figure 5.18 Information and Electronic Transaction Regulation	58