



# BundleBox Android Application

A Project submitted in partial fulfillment of the requirement for the degree of  
Master of Information and Communication Technology at School of  
Professional Advancement, University of Management and Technology Lahore

## Submitted by:

- |   |               |             |
|---|---------------|-------------|
| 1 | Arslan Tariq  | 12001161008 |
| 2 | Muhammad Ali  | 12001161002 |
| 3 | Tayyaba Nawaz | 12001161013 |
| 4 | Usman Shafiq  | 12001161009 |

## Approved Supervisor:

Name: Mr. ABDUL HASEEB SHUJJA

Signature:

Date:



# School of Professional Advancement

# Dedication

---

This project is dedicated to Almighty Allah for giving us the grace, strength and courage to complete it

And to our parents who have educated and supported us beyond measure.

# Acknowledgment

---

We would like to express our gratitude to everyone who have supported us and encouraged us through the extensive course of this MICT project. Working on this project has been a constant struggle that led us to many challenges but without the support, patience and valuable feedback of the people involved, this task would not have been completed, it is to them we all owe our deepest gratitude.

It gives us immense pleasure and satisfaction in presenting this project report on 'BundleBox' an android application. It has been a privilege to have suchmentorshipwhichhas assisted us in very way starting from the commencement of this project.

We would like to thank SPA director Dr. Naveed Yazdani and Mr. Abdul Haseeb Shujja our course advisor for giving us the opportunity to present our project and for guiding us to pursue our project in order to finish our Master's degree.

We are also greatly indebted to Mr. Khalil Arbi, Mr. Talha Khan and Mr.Imran Saleem for their support and guidance at School of Professional Advancement.

Thank you,

Arslan Tariq  
Muhammad Ali  
Tayyaba Nawaz  
UsmanShafiq

# Table of Contents

1	Chapter One - Introduction .....	<b>Error! Bookmark not defined.</b>
1.1	Identification of need .....	<b>Error! Bookmark not defined.</b>
1.2	Project Category: Mobile Application .....	<b>Error! Bookmark not defined.</b>
1.3	Project Objective .....	<b>Error! Bookmark not defined.</b>
1.4	Problem Formulation.....	<b>Error! Bookmark not defined.</b>
1.5	Identification of Need.....	<b>Error! Bookmark not defined.</b>
1.6	Existing Systems and Their Limitations .....	<b>Error! Bookmark not defined.</b>
1.7	Proposed Solution: .....	<b>Error! Bookmark not defined.</b>
1.8	Unique Features of the Application: .....	<b>Error! Bookmark not defined.</b>
1.8.1	Package management:.....	<b>Error! Bookmark not defined.</b>
1.8.2	SMS package information: .....	<b>Error! Bookmark not defined.</b>
1.8.3	Internet package information: .....	<b>Error! Bookmark not defined.</b>
1.8.4	Bundle offer information: .....	<b>Error! Bookmark not defined.</b>
1.8.5	Pricing of the packages: .....	<b>Error! Bookmark not defined.</b>
1.8.6	Manual scheduling the packages: .....	<b>Error! Bookmark not defined.</b>
1.8.7	Push notification: .....	<b>Error! Bookmark not defined.</b>
2	Chapter Two - Requirement Analysis and System Specification..	<b>Error! Bookmark not defined.</b>
2.1	Feasibility Study:.....	<b>Error! Bookmark not defined.</b>
2.1.1	Technical Feasibility:.....	<b>Error! Bookmark not defined.</b>
2.1.2	Operational Feasibility:.....	<b>Error! Bookmark not defined.</b>
2.1.3	Timeline Feasibility: .....	<b>Error! Bookmark not defined.</b>
2.2	Software Requirement Specification:.....	<b>Error! Bookmark not defined.</b>
2.2.1	Data requirements: .....	<b>Error! Bookmark not defined.</b>
2.2.2	Functional requirements: .....	<b>Error! Bookmark not defined.</b>
2.2.3	Performance Requirement:.....	<b>Error! Bookmark not defined.</b>
2.2.4	System Dependability:.....	<b>Error! Bookmark not defined.</b>
2.2.5	Maintainability Requirement: .....	<b>Error! Bookmark not defined.</b>
2.2.6	Look And Feel Requirements: .....	<b>Error! Bookmark not defined.</b>

2.2.7	Validation:.....	<b>Error! Bookmark not defined.</b>
2.2.8	Constraints: .....	<b>Error! Bookmark not defined.</b>
2.2.9	Software development life cycle - SDLC Model:.....	<b>Error! Bookmark not defined.</b>
2.2.10	Requirement Gathering &Analysis:.....	<b>Error! Bookmark not defined.</b>
2.2.11	System Designing .....	<b>Error! Bookmark not defined.</b>
2.2.12	Coding.....	<b>Error! Bookmark not defined.</b>
2.2.13	System Testing.....	<b>Error! Bookmark not defined.</b>
2.2.14	System Deployment and Maintenance.....	<b>Error! Bookmark not defined.</b>
3	Chapter Three - Application Design .....	<b>Error! Bookmark not defined.</b>
3.1	Design Approach:.....	<b>Error! Bookmark not defined.</b>
3.2	Function Oriented Design Approach: .....	<b>Error! Bookmark not defined.</b>
3.3	Detailed Design:.....	<b>Error! Bookmark not defined.</b>
3.4	System Design:.....	<b>Error! Bookmark not defined.</b>
3.4.1	Use Case 001 – Network Selection.....	<b>Error! Bookmark not defined.</b>
3.4.2	Use Case 002 – Package Management .....	<b>Error! Bookmark not defined.</b>
3.4.3	Use Case 003 – Call Package Subscription .....	<b>Error! Bookmark not defined.</b>
3.4.4	Use Case 004 – Call Package Information .....	<b>Error! Bookmark not defined.</b>
3.4.5	Use Case 005 – SMS Packages Subscription/Un-subscription .....	<b>Error! Bookmark not defined.</b>
3.4.6	Use Case 006 – SMS Packages Information.....	<b>Error! Bookmark not defined.</b>
3.4.7	Use Case 007 – Internet Packages Subscription/Un-subscription .....	<b>Error! Bookmark not defined.</b>
3.4.8	Use Case 008 – Internet Packages Information .....	<b>Error! Bookmark not defined.</b>
3.4.9	Use Case 009 – Bundles Offers Information View .....	<b>Error! Bookmark not defined.</b>
3.4.10	Use Case 0010 – Pricing Packages Details.....	<b>Error! Bookmark not defined.</b>
3.4.11	Use Case 0011 – Manual/Automatic Scheduling .....	<b>Error! Bookmark not defined.</b>
3.4.12	Use Case 0012 – Push Notifications .....	<b>Error! Bookmark not defined.</b>
3.5	User Interface Design.....	<b>Error! Bookmark not defined.</b>
3.5.1	Low fidelity Prototype .....	<b>Error! Bookmark not defined.</b>

3.5.2	High Fidelity Prototype.....	<b>Error! Bookmark not defined.</b>
3.6	Data Flow Diagrams (DFD).....	<b>Error! Bookmark not defined.</b>
3.7	Activity Diagrams .....	<b>Error! Bookmark not defined.</b>
3.7.1	Activity Diagrams for Application Users .....	<b>Error! Bookmark not defined.</b>
3.8	Sequence Diagrams .....	<b>Error! Bookmark not defined.</b>
3.8.1	Full system sequence diagram UC001.....	<b>Error! Bookmark not defined.</b>
3.8.2	User and SMS Package System Sequence diagram UC002 ...	<b>Error! Bookmark not defined.</b>
3.8.3	User and Bundles Information System Sequence diagram UC003 .....	<b>Error! Bookmark not defined.</b>
4	Chapter Four – Implementation .....	<b>Error! Bookmark not defined.</b>
4.1	System Implementation:.....	<b>Error! Bookmark not defined.</b>
4.2	Languages, Tools, IDE’s, and Technologies Used for Implementation: .....	<b>Error! Bookmark not defined.</b>
4.2.1	Java .....	<b>Error! Bookmark not defined.</b>
4.2.2	Android Development Tools.....	<b>Error! Bookmark not defined.</b>
4.2.3	Security and Permission Concept in Android....	<b>Error! Bookmark not defined.</b>
4.3	Methodology .....	<b>Error! Bookmark not defined.</b>
4.4	Project Scheduling.....	<b>Error! Bookmark not defined.</b>
5	Chapter Five – Testing.....	<b>Error! Bookmark not defined.</b>
5.1	Objectives of Testing .....	<b>Error! Bookmark not defined.</b>
5.2	System Testing .....	<b>Error! Bookmark not defined.</b>
5.3	User Acceptance Testing.....	<b>Error! Bookmark not defined.</b>
5.4	GUI Testing.....	<b>Error! Bookmark not defined.</b>
5.5	Security Testing.....	<b>Error! Bookmark not defined.</b>
5.6	Unit Testing.....	<b>Error! Bookmark not defined.</b>
5.7	Performance & Usability Testing.....	<b>Error! Bookmark not defined.</b>
5.8	Error Handling Testing.....	<b>Error! Bookmark not defined.</b>
5.9	Integration and Functional Testing .....	<b>Error! Bookmark not defined.</b>
6	Chapter Six - Conclusion .....	<b>Error! Bookmark not defined.</b>
6.1	Summary .....	<b>Error! Bookmark not defined.</b>
6.2	Conclusion.....	<b>Error! Bookmark not defined.</b>

6.3	Project Deliverables .....	<b>Error! Bookmark not defined.</b>
6.3.1	Requirements Gathering .....	<b>Error! Bookmark not defined.</b>
6.3.2	Designing of Application .....	<b>Error! Bookmark not defined.</b>
6.3.3	Project Planning & Scheduling .....	<b>Error! Bookmark not defined.</b>
6.3.4	Documentation .....	<b>Error! Bookmark not defined.</b>
6.4	Future Enhancements .....	<b>Error! Bookmark not defined.</b>
7	Appendix A - Project Management Documents .....	<b>Error! Bookmark not defined.</b>
7.1	Team Structure .....	<b>Error! Bookmark not defined.</b>
7.2	Roles & Responsibilities .....	<b>Error! Bookmark not defined.</b>
7.3	Project Scope statement .....	<b>Error! Bookmark not defined.</b>
7.4	Meetings summary .....	<b>Error! Bookmark not defined.</b>
7.5	WBS (Work Breakdown Structure) .....	<b>Error! Bookmark not defined.</b>
	Appendix B – Bibliography .....	<b>Error! Bookmark not defined.</b>

## List of Figures

FIGURE 1	REPRESENTATION OF WATERFALL – SDLC .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 2	USE CASE FOR NETWORK SERVICE SELECTION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 3	USE CASE FOR PACKAGES MANAGEMENT .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 4	USE CASE FOR CALL PACKAGES SUBSCRIPTION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 5	USE CASE FOR CALL PACKAGES INFORMATION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 6	USE CASE FOR SMS PACKAGE SUBSCRIPTION/UN-SUBSCRIPTION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 7	USE CASE FOR SMS PACKAGE INFORMATION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 8	USE CASE FOR INTERNET PACKAGES SUBSCRIPTION/UNSUBSCRIPTION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 9	USE CASE FOR INTERNET PACKAGES INFORMATION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 10	USE CASE FOR BUNDLE OFFERS INFORMATION VIEW .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 11	USE CASE FOR PACKAGES PRICING DETAILS .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 12	USE CASE FOR AUTOMATIC & MANUAL SCHEDULING OF PACKAGES .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 13	USE CASE FOR PUSH NOTIFICATION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 14	WELCOME NOTE FIRST SCREEN .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 15	NETWORK SELECTION SCREEN .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 16	MAIN DASH BOARD .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 17	SMS PACKAGE SELECTION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 18	CALL PACKAGE SELECTION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 19	SHORTCUT MENU ICON FOR PACKAGE APPLICATION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 20	DASHBOARD FOR APPLICATION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 21	LEFT SLIDING MENU FOR APPLICATION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 22	LEFT MENU - MOBILINK TAB SELECTION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>

FIGURE 23 SMS PACKAGES SELECTION FOR MOBILINK .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 24 SMS SUBSCRIPTION PACKAGES SELECTION FOR MOBILINK .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 25 SMS SUBSCRIPTION & UNSUBSCRIPTION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 26 USSD CODE RUNNING AFTER SUBSCRIPTION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 27 CUSTOM SETTINGS FOR APPLICATION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 28 ADDING CUSTOM SETTINGS .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 29 ADDING DETAILS IN CUSTOM SETTINGS .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 30 VIEW CUSTOM SETTINGS .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 31 DFD - ANDROID PACKAGES APPLICATION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 32 ACTIVITY FOR APPLICATION USER .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 33 ACTIVITY FOR SMS PACKAGE SELECTION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 34 ACTIVITY FOR SUBSCRIBING INTERNET PACKAGE .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 35 ACTIVITY FOR VIEWING PACKAGES DETAILS & PRICES .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 36 UC001 - SEQUENCE DIAGRAM USER AND PACKAGE MANAGEMENT SYSTEM .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 37 UC002 - SEQUENCE DIAGRAM USER AND SMS PACKAGE SYSTEM .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 38 UC003 - SEQUENCE DIAGRAM USER AND BUNDLES INFORMATION SYSTEM .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 39 AGILE DEVELOPMENT METHODOLOGY .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 40 GUI TESTING FOR SMS SUBSCRIPTION .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
FIGURE 41 WORK BREAKDOWN STRUCTURE .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>

## List of Tables

TABLE 1 TEST CASE ID: MOB-1214_1 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
TABLE 2 TEST CASE ID: MOB-1214_2 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
TABLE 3 TEST CASE ID: MOB-1214_3 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
TABLE 4 TEST CASE ID: MOB-1214_4 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
TABLE 5 TEST CASE ID: MOB-1214_5 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
TABLE 6 TEST CASE ID: MOB-1214_6 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
TABLE 7 TEST CASE ID: MOB-1214_7 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
TABLE 8 TEST CASE ID: MOB-1214_8 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
TABLE 9 TEST CASE ID: MOB-1214_9 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
TABLE 10 TEST CASE ID: MOB-1214_10 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
TABLE 11 TEST CASE ID: MOB-1214_11 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
TABLE 12 TEST CASE ID: MOB-1214_12 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
TABLE 13 TEST CASE ID: MOB-1214_13 .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>

# Abstract

---

BundleBox helps in easily accessing network package information, management of those packages and their subscription. It is an offline application that can be accessed anywhere at any time through an android phone.

Mobile phone packages, their information and scheduling have always have been a matter of nuisance for customers as they are based on different USSD codes, memorizing and management of these codes seems to be a key issue for a majority of mobile phone users hence the motive for this application. BundleBox will assist its users by allowing them to subscribe, unsubscribe, custom manage and be notification of their subscribed packages as desired.

BundleBox will serve as a package information and management solution for users of all local mobile networks; it will especially be useful for users with multiple SIM cards assisting them with all their voice, SMS and data packages.

