



*Capsuite Project Management Document*

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| **Date** | **Version** | **Description** | **Author** |
| 04-10-2018 | 0.01 | Initial Draft | Gaokgakala Tubutubu |
| 08-02-2019 | 0.1 | First version | Gaokgakala Tubutubu |
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**Table of Contents**

1. Introduction 4

1.1 Purpose of this document 4

1.2 Intended Audience 4

1.3 Scope 4

1.4 Definitions and acronyms 4

1.4.1 Definitions 4

1.4.2 Acronyms and abbreviations 5

1.5 References 5

2. Background and Objectives 5

3. Organization 5

*3.1* Project group 6

3.2 Customer 7

3.3 Supervisor 7

3.4 Others 7

4. Development process 7

*5.* Deliverables 7

5.1.1 Remarks 10

*6.* Inputs 10

7. Project risks 10

8. Communication 11

8.1 Language 11

8.2 Asynchronous communication 11

8.3 Synchronous communication 11

8.4 Minutes of Meeting document 11

8.5 Event organization and time management 11

9. Configuration management 11

9.1 Google Documents 11

9.2 Google Drive 11

9.3 Github 11

10. Project plan 12

10.1 Time schedule 12

10.1.1 Remarks 13

10.2 Activity plan 14

10.2.1 Remarks 15

**Project Charter Background and Objectives**

**Vision**

To design and develop an AI and ML mobile first web application, that will improve the customer service function of micro-lenders, insurance brokers, pension brokers, legal/medical service providers as it relates to account opening, personal loan application, processing and payment, insurance applications and claims.

# **Solution Description**

A dynamic AI web application that will enable sales agents of financial service providers (FSP’s) to conduct field and office sales in an efficient, secure and user-friendly environment including all documentation while leveraging the use of data and analytics to enhance business performance. The other objective of the solution is to reduce fraud in personal loan applications.

## **The Customer (Application End User)**

The target customers are; Banking Institutions, Independent Micro-lenders, Pension Brokers, Insurance Brokers, stock exchange brokers, legal aid and medical service providers

* Back office Operators from above clients
* Field and in house Sales Agents of the above clients.

# **Development process**

The project will use AGILE as the development process. Each sprint will start with a *scrum Planning Meeting* and will end with a *Scrum Retrospective*. Apart from these mandatory meetings, there will also be a fifteen-minute *Sprint Review Meeting* two times every week, throughout each sprint.

For example using Test Driven Development (TDD), Write unit test (minimum amount of code) to match business logic, database, business, UI, test-case can all be done in parallel split into module (example) "user module, invoice module, contract module" technical specification then Solid tests

Implementation of Microservices and containerization

Development tools that will be used to supplement AGILE are:

|  |  |  |
| --- | --- | --- |
| Item | Coding Standard | Adopt industry standard coding aesthetics and documentation formatting standards |
| 1 | Database | PostgreSQl (Multi-tenanted cluster) |
| 2 | DB Adapters/connectors, ORM | [psycopg2](http://initd.org/psycopg/docs/), SQLAlchemy, Alembic, libpq-dev |
| 2 | Coding Language(s) | Python 2 & 3, Javascript, HTML5, CSS, React, JSON, Jquery |
| 3 | Package Manager | Anaconda |
| 4 | Web Framework | Python Flask |
| 5 | Rest API | Flak RESTFul |
| 5 | Microservices | Flask Microservices |
| 6 | Middleware | Flak Middleware |
| 6 | Front End Dashboard | Flask Admin/Flask Frontend |
| 6 | Version Control | Git |
| 7 | Staging & Production | Gitlab-Heroku |
| 8 | Payments gateways | Orange money, Stripe, PayPal, EFT |
| 8 | Hosting (Server side logic & Heavy lifting) | Docker-\*Important run as non-root user. Travis-continuous integration |

Kunagi

**Why Python**

For business logic and simplicity in coding and deployment, analytics, regulation, compliance, and data, libraries, time to market

Why Python Flask Framework:

The simplicity and ease of the language is nicely complemented with the awesome [Flask](http://flask.pocoo.org/) microframework. It is an unopinionated library that has everything you need from it but nothing more.

*The "micro" in microframework means Flask aims to keep the core simple but extensible.*

The framework gives you a very convenient way of defining endpoints, handling the request data and building the HTTP responses. It does have a Jinja2 templating engine built-in which is very easy to use but just as easy to replace it should you prefer another module for it.

**Project Team**

Since the team will be using Agile methods as the way of working, the group will work as a cross functional team for greater experience. Thus, the deliverables will be matched with each scrum delivery, and each phase of testing will also be done within a scrum. In order to match the three tier architecture and have clearer responsibilities, the whole group is divided into three subgroups;

|  |  |  |
| --- | --- | --- |
| **Name** | **Initials** | **Responsibility (roles)** |
| Mentor : Botswana Innovation Hub | BIH | Provides project guidance, reviews progress, assesses deliverable quality. |
| Gaokgakala Tubutubu | GT | Project Manager,  Process development,  Database Design  Business Process Mapping Supports documentation processes, facilitates sponsor reviews,  coordinates prototyper and builder workgroups, ensures adequate  Implementation of the project management plan. |
| Peloyame Balotlegi | PB | Assistant PM Roles |
| Malcom Kgogobi  Lebone Busang  Clive Maduke | MK,LB, CM | Process development,  Database Developer |
| Gaone Mokgobelelo Mothusi Makwakwago  Otshepeng Rammoi | GM, MM,OM | Project Coordinator,  UI developer,  Code Style Supervisor,  UI developer |
| Kutlwano Maruatona  Joseph Masole  Jefferson Moshasho | KM,JM,JM | Manager,  Server side developer |
|  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **To** | **Output** | **Planned week** | **Promised week** | **Late +/-** | **Delivered week** | **Rem** |
| Project team | Project vision overview document | 7 | 8 | 0 | 8 |  |
| Project team | Project team contact information document | 7 | 7 | 0 | 7 |  |
| Project team | Responsibilities by date | 7 | 8 | 0 | 8 |  |
| Project team | Project vision Presentation (v.1) | 5 |  | 0 | 8 |  |
| Project Manager | Project vision Presentation (v.1) | 5 |  | 0 | 8 |  |
| Project Manager, project team | Project vision Presentation | 5 | 8 | 0 | 8 |  |
| Project team | Project plan document (v.1) and Requirements Definition document (v.1) | 5 | 8 | 0 | 8 |  |
| Project Manager | Project plan document (v.1) and Requirements Definition document (v.1) | 5 |  | 0 |  |  |
| Project Manager, project team | Project plan Presentation | 5 |  | 0 |  |  |
| Project functionality consultants | Presentation of the project functionalities and GUI mock-up |  |  | 0 |  |  |
| Project Manager, project team, Course staff | Project plan document (v.1) and Requirements Definition document (v.1) |  |  |  |  |  |
| Project Manager, project team, | Requirements Definition and System Architecture Presentation |  |  |  |  |  |
| Project team | Server interface definition (Application documentation) |  |  |  |  |  |
| Project Manager, project team | Design Description document (v.1) | 7 |  |  |  |  |
| Project team | Server side implementation project code with comments |  |  |  |  |  |
| Project team | Client side GUI mock up's |  |  |  |  |  |
| Project team | Client side defined functionalities implementation code with comments |  |  |  |  |  |
| Project team | Server side implementation project code with comments |  |  |  |  |  |
| Project team | Client side GUI mock up's |  |  |  |  |  |
| Project team | Client side defined functionalities implementation code with comments |  |  |  |  |  |
| Project supervisor | Application screens shots that show the implemented functionality |  |  |  |  |  |
| Project team | Server side implementation project code with comments |  |  |  |  |  |
| Project team | Client side defined functionalities implementation code with comments |  |  |  |  |  |
| Project team | Alpha prototype code and comments |  |  |  |  |  |
| Potential users | Application screens shots that show the implemented functionality |  |  |  |  |  |
| Project team | Definition of data sources for the application (Application data sources description document) |  |  |  |  |  |
| Project functionality Team | Application screens shots that show the implemented functionality |  |  |  |  |  |
| Project Manager | Application screens shots that show the implemented functionality |  |  |  |  |  |
| Project Manager | Alpha prototype presentation |  |  |  |  |  |
| Project Manager, project team | Milestone - Alpha prototype Presentation |  |  |  |  |  |
| Project team | Server side implementation project code with comments |  |  |  |  |  |
| Project team | Client side GUI mock up's |  |  |  |  |  |
| Project team | Client side defined functionalities implementation code with comments |  |  |  |  |  |
| Project team | Server side implementation project code with comments |  |  |  |  |  |
| Project team | Client side GUI mock up's |  |  |  |  |  |
| Project team | Client side defined functionalities implementation code with comments |  |  |  |  |  |
| Project Manager | Application screens shots that show the implemented functionality |  |  |  |  |  |
| Potential users | Application screens shots that show the implemented functionality |  |  |  |  |  |
| Project team | Server side implementation project code with comments |  |  |  |  |  |
| Project team | Client side GUI mock up's |  |  |  |  |  |
| Project team | Client side defined functionalities implementation code with comments |  |  |  |  |  |
| Project functionality | Application screens shots that show the implemented functionality |  |  |  |  |  |
| Project Manager | Application screens shots that show the implemented functionality |  |  |  |  |  |
| Project Manager, project team, | Milestone – Beta prototype Presentation |  |  |  |  |  |
| Project team | Test plan document |  |  |  |  |  |
| Project Manager, project team, Client(s) | Acceptance test plan document |  |  |  |  |  |
| Project Manager, project team, Clients(s) | Test report document | 2 | 2 |  |  |  |
| Project Manager | Final project presentation | 2 | 3 |  |  |  |
| Project Manager, project team | Final project presentation | 2 | 3 |  |  |  |
| Project Manager, project team | Final Project Report, final versions of existing documents, other project-related documentation | 3 | 3 |  |  |  |
| Project Manager, project team | Final product (installation, source code) | 3 | 3 |  |  |  |
| Application Test Team | Application screens shots that show the implemented functionality | 3 | 3 |  |  |  |

**Human Resource Plan**

**Roles and responsibilities**

Project Manager: Gaokgakala Tubutubu, DNIIT, Computer Science Network Engineering with 7 years of System Design and Engineering and Database Architect, 5 years of experience in project management in both small and large projects, Worked as IT Technician and later IT manager for PTA International Call Center administering a dialer and call campaigns for merchants processing in UK, Australia, India USA and 2009-2011. He also formed part of the; The Inland Recruitment Pool database company in 2011-2013 were he designed the labourforce database for workforce placement, Having worked very closely with various major Financial Service Provider’s in the past 5 years in business development role makes him understand the problem we are solving, market dynamics and how the technology space can bridge the gap to leverage profit and scaling of the product. He brings excellent communication, interpersonal, international business skills allowing for effective integration of project deliverables and meeting of client expectations. He is a self-taught web designer wit UIUX skills and an overall understanding of web design technologies.

Business Consultant: Ms Peloyame Balotlegi, Msc Adv networking 2013, Bsc Computer Science, Botho University, 2011. She brings in diversity on experience acquired as a lecture at Botho University for the past five years. Her experience with Oracle systems integration will definitely pay off in dealing in app integration, live deployment and production stages.

**Project Risk Analysis**

|  |  |  |
| --- | --- | --- |
| **Possibility** | **Risk** | **Preventive action** |
| No signature solution functionality. | high | Use USSD solution for sms verification with end client |
| No adequate data sources. | high | Create a database to test application functionalities and find data sources at a later date. |
| The project gets prolonged. | medium | Avoid implementing complicated functionalities and using too much data sources. |
| Developers limited knowledge of certain technologies | medium | All developers work together to find the easiest possible solution. |
| Members not available due to some reason. | medium | Responsible members try to finish the tasks before their unavailability. If that is not possible, other members may be assigned more tasks. |
| Work coordination over distance | medium | Use project management tools, weekly meeting to discuss progress and clear work delegation. |
| Setting up the development environment takes more time. | low | Try to seek help from the PM in this regard. In the worst case, change the development environment. |

Milestone Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Milestones** | | **Description** | **Milestone Criteria** | **Planned Date** |
| M0 |  | Start Project | Project Plan released | 11/02/2019 |
|  |  | Project goals and scope defined | Requirements reviewed  Stakeholders identified Impl. Proposal reviewed | 13/02/2019 |
| M1 |  | Start Planning |  | 13/02/2019 |
|  |  | milestone description, | Scope and concept described | 14/02/2019 |
| M2 |  | Start Execution |  | 18/02/2019 |
|  |  | milestone description, | Requirements agreed, project plan reviewed, resources committed | 18/02/2019 |
| M3 |  | Application Design |  | 25/02/2019 |
|  |  | Milestone description, Database Schema Design |  |  |
|  |  | Confirm Execution |  |  |
|  |  | milestone description,  Alpha version | Architecture reviewed and stable | 25/02/2019 |
| M4 |  | Start Introduction |  | 18/03/2019 |
|  |  | milestone description,  unit test passed | Coding of new functionality finished,  Draft documentation | 20/03/2019 |
| M5 |  | Release Product |  | 18/04/2019 |
|  |  | milestone description | Product system tested, documentation reviewed | 20/04/2019 |
| M6 |  | Close Project |  | 10/05/2019 |

A detailed Project Schedule will be availed in a week. The Project Schedule is monthly updated by the Project Manager.

**Communication**

## Language

## Official language of the project will be English. Official meetings will be held in English. All project documentation and presentations will also be written in English.

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## **Asynchronous communication**

## Communication can be held via e-mail exchange, slack platform and phone among team members.

## **Synchronous communication**

## There is no geographical barrier between team members regular meetings will be held on weekly basis on Mondays and Fridays. Meetings are going to be organized by project manager and can be suggested by any team member to address high priority issues.

## **Minutes of Meeting document**

## After every meeting, *Minutes of Meeting* document will be written and uploaded to an agreed repository. After additional verification, document will be shared by project Documents are going to be written by immediate available team members**.**

## **Event organization and time management.**

## Time and place of every meeting will be published on shared Google Calendar. Availability and obligations of the team members during this project will be

# **Configuration management**

## **Google mail and Google drive**

Google Documents will be used as a central place for all documents. Documents like contact information of team members, project plans, obligations by date and additional useful documentation can be found here: [richbasetech@gmail.com](mailto:richbasetech@gmail.com)

## 

## **Google drive** is going to be used as a repository for official documentation and will contain all project documentation before upload to official project site.

## **Code Repository:** Github

All source code and finished documentation will be uploaded to **Github** repository. Repository has four main directories, *Code, Documentation, Other* and *Reports*. For better organization, folder *Documentation* contains separated folders for every category of the documentation. Directory *Other* will be used for unofficial documents that will be used, like data sources or sample codes. All users need to be careful when committing data to **Github**. Incorrect and careless commit of the data can have serious consequences, like loss of the data. All other users of the repository will also get all changes once they update their local repository.

**Version Control:** Gitlab

Repository URL: TBC

# **Project plan**

## **Time schedule**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Id** | **Milestone**  **Description** | **Responsible** |  |  |  | **Rem.** |
|  |  |  | **Forecast** |  | **Actual** |  |
|  |  |  | **Week** | **+/-** |  |  |
| M001 | Basic work delegation (Responsibilities by date document) | Project Manager | 3 days | 0 |  |  |
| M002 | Gathering and defining project requirements (Project plan document) | All | 5 days | 0 |  |  |
| M003 | Application functionalities defined (Requirements document and Traceability matrix) | All | 3 days | 0 |  |  |
| M004 | Application architecture and object model defined (Requirements document and Design description document) |  | 5 days |  |  |  |
| M005 | Data sources defined (Project vision document updated) |  | 10 days |  |  |  |
| M006 | Basic functionality implemented (Defined in project requirements document) (Application source code) |  | 5 days |  |  |  |
| M007 | Basic functionality test (Application test document) |  | 2 days |  |  |  |
| M008 | GUI test (Application test document) |  | 2 days |  |  |  |
| M009 | Project documentation updated (Project documentation) | All | 1 day |  |  |  |
| M010 | Optional functionality implemented (Defined in project requirements document) (Application source code) |  | 5 days |  |  |  |
| M011 | GUI test (Application test document) |  | 5 days |  |  |  |
| M012 | Optional functionality test (Application test document) |  | 10 days |  |  |  |
| M013 | Documentation updated (Project documentation) | All | 3 days |  |  |  |
| M014 | GUI and performance test (Application test document) |  | 6 days |  |  |  |
| M015 | Application acceptance test (Application test document) | All | 6 days |  |  |  |
| M016 | Application finished (Application source code + data base file) |  | 7 days |  |  |  |
| M017 | Documentation finished (Project documentation) | All | 5 days |  |  |  |
| M018 | Project finished (Final project report document) | All |  |  |  |  |
| M019 | Go Live configuration | All | 5 days |  |  |  |

### **Remarks**

|  |  |
| --- | --- |
| **Remark Id** | **Description** |
|  |  |
|  |  |
|  |  |
|  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **Activity** | **Days** | **M/days** | **Rem.** |
| 1 | Basic work delegation | 3 | 1 |  |
| 2 | Project specification | 5 | 5 |  |
| 3 | Gathering and defining project requirements | 3 | 18 |  |
| 4 | Application functionalities defined | 5 | 6 |  |
| 5 | Application architecture defined | 5 | 3 |  |
| 6 | Data sources defined | 10 | 15 |  |
| 7 | Define backlog | 1 | 1 |  |
| 8 | Sprint implement basic functionality | 10 | 15 |  |
| 9 | Implementing backlog tasks | 5 | 10 |  |
| 10 | Basic functionality test | 1 | 2 |  |
| 11 | GUI test | 1 | 2 |  |
| 12 | Backlog grooming | 1 | 1 |  |
| 13 | Sprint implement basic functionality | 5 | 10 |  |
| 14 | Implementing backlog tasks | 5 | 10 |  |
| 15 | Basic functionality test | 1 | 2 |  |
| 16 | GUI test | 1 | 2 |  |
| 17 | Documentation updated | 1 | 2 |  |
| 18 | Define backlog | 1 | 1 |  |
| 19 | Sprint - optional functionality implementation | 10 | 20 |  |
| 20 | Implementing backlog tasks | 10 | 15 |  |
| 21 | GUI test | 3 | 2 |  |
| 22 | Optional functionality test | 3 | 3 |  |
| 23 | Documentation updated | 3 | 3 |  |
| 24 | Define backlog | 1 | 1 |  |
| 25 | Sprint - Application testing and final implementation | 10 | 20 |  |
| 26 | Implementing backlog tasks | 5 | 10 |  |
| 27 | GUI and performance test | 5 | 4 |  |
| 28 | Application acceptance test | 5 | 10 |  |
| 29 | Application finished | 4 | 1 |  |
| 30 | Documentation finished | 6 | 18 |  |
| 31 | Project finished | 1 | 1 |  |

|  |  |
| --- | --- |
| **Planned effort (days)** | **Planned effort (man-days)** |
| 90 | 120 |