

# FUNCTIONAL REQUIREMENTS DOCUMENT

Team BitByBit

Fazlul Faizal, Eitan Abrishami, Joshua Delshad, Moh Prajapati, Fotios Bampouridis

# 1. Introduction

## 1.1 Purpose

This document outlines the functional requirements for our application BitByBit, an e-commerce platform. It defines the system's intended behavior, core features, and user interaction required to successfully operate a competitive, gaming focused, AI experience, online retail store. This iteration focuses more towards an AI driven architecture, incorporating Groq as our LLM for all our clients for free, to find out more about our products.

## 1.2 Scope

BitByBit platform will facilitate the sale of digital video games, consoles, accessories, and merchandise. Key differences will be a robust pre-order management system, and a loyalty rewards program, deep search with AI search, pricing decision making, and customer support.

# 2. System Overview

This system is a mobile application developed to provide an AI-enhanced ecommerce gaming platform where users can purchase games, consoles, and merchandise. The current iteration also works in the browser, Android 16 and above which is yet to be fully tested.

# 3. Functional Requirements

The functional requirements are listed below in “The system shall...” format.

## Functional requirements

### Functional-Requirement 1

The system shall allow users to browse the gaming catalog using GROK-powered semantic natural language search.

### Functional-Requirement 2

The system shall display personalized game recommendations, dynamic pricing, and AI-generated product review summaries.

### Functional-Requirement 3

The system shall store data related to user profiles, order history, inventory in the database.

### Functional-Requirement 4

The system shall allow users to update their account details, shopping cart quantities and track the shipping status of their orders. Ideas such as AI assisted tracking is also to be determined.

### Functional-Requirement 5

The system shall allow users to delete items from their cart, saved payments methods, and account data.

# 4. Feature Classification

## Required Features

- Core functionality necessary for the system to operate would be User registration/authentication, secure shopping cart and checkout involving secure payment method, catalog browsing, order management via Django.

## Desired Features

- Additional features that add to the performance would be GROK-Powered AI chatbot for 24/7 customer support, deep search using AI.

## Aspirational Features

- AI vision based return condition analysis and dynamic pricing.

# 5. Non-Functional Requirements

- The system shall be easy to navigate, and a bottom navigation bar will assist in that..
- The system shall load the user profile upon login, display all inventory within a timely manner..
- The system shall ensure that payments and client profiles & data are highly confidential.
- The system shall be available to all clients and through 24/7 AI support.

# 6. System Architecture

The system follows a three-tier architecture:

- Presentation Layer (User Interface)
  - React Native via javascript to provide a seamless, cross platform experience for mobile platforms, current version focuses on Android.
- Business Logic Layer
  - Powered fully by Django via Python 3.0. This layer handles user authentication via Azure (WIP), payment routing, inventory management, and server communication for GROQ LLM for ultra fast AI features.
- Data Layer (Database)
  - The central database is MongoDB, for storing user and product data for now, integrated with Azure.

# 7. Architecture Diagram

