# Product Backlog

Project Title: Population Report Project

Module: Software Engineering

**Team Members: Student ID**

Muavia Saeed 40774821

Muhammad Awais Khan 40742421

Muhammad Adil Tahir 40742414

Abdullah Javed 40742337

Rana Muhammad Awais 40742404

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## Introduction

This document outlines the product backlog for the 'Population Report Project', developed using Scrum methodology. It includes user stories, priorities, sub-tasks, and effort estimations to guide the development process.

## Product Backlog

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ID | Epic | User Story | Priority | Sub-Tasks | Effort Points | Status |
| US1 | Report Generation | As a user, I want to see all countries ordered by population so that I can compare population sizes. | P1 | Write SQL query Create UI page Test output | 5 | To Do |
| US2 | Report Generation | As a user, I want to see top N populated cities globally to analyze urban trends. | P1 | Add input field for N Modify query Display results | 3 | To Do |
| US3 | Data Access | As a user, I want to know the total population of each continent so that I understand geographic distribution. | P2 | Design table output Get continent list Calculate % in cities | 5 | To Do |
| US4 | Language Stats | As a user, I want to know how many people speak Chinese, English, Hindi, Spanish, and Arabic worldwide. | P2 | Identify language population Calculate percentage Visualize data | 4 | To Do |
| US5 | Capital Cities | As a user, I want to view capital cities ordered by population in a continent. | P3 | Dropdown for continent Query & display capitals Error handling | 3 | To Do |
| US6 | World Stats | As a user, I want to compare population living in cities vs not living in cities for each country. | P1 | City/country mapping Population logic Graph output | 5 | To Do |
| US7 | Report Generation | As a user, I want to view cities by district ordered by population. | P2 | District input Sort logic Test results | 3 | To Do |
| US8 | Report Generation | As a user, I want to view capital cities by region in descending population. | P3 | Region filter Sort capitals Display UI | 3 | To Do |
| US9 | Data Access | As a user, I want the population of each country, region, and continent displayed with city breakdowns. | P1 | Hierarchy logic Database join Validation | 5 | To Do |
| US10 | Population Reports | As a user, I want to get percentage of population living in cities for each region. | P2 | City aggregation Math logic Output percentage | 4 | To Do |

## User Story Explanations

### US1 - Report Generation

As a user, I want to see all countries ordered by population so that I can compare population sizes.

**Priority:** High  
**Labels:** Feature, Report  
**Subtasks:**

* Write SQL query for countries ordered by population
* Display output in console
* Format output in report style (Code, Name, Continent, Region, Population, Capital)

✅ TO-DO

- [ ] Write SQL query for countries ordered by population

- [ ] Display output in console

- [ ] Format output: Code, Name, Continent, Region, Population, Capital

### US2 - Report Generation

As a user, I want to see top N populated cities globally to analyze urban trends.

**Priority: Medium  
Labels: Input, Dynamic, SQL  
Subtasks:**

* **Add input logic for N**
* **Update query to LIMIT N**
* **Test with N = 5, 10, 20**

### US3 - Data Access

As a user, I want to know the total population of each continent so that I understand geographic distribution.

**Priority:** High  
**Labels:** Filter, SQL  
**Subtasks:**

* Modify query to accept continent input
* Display result in console
* Validate input

### US4 - Language Stats

As a user, I want to know how many people speak Chinese, English, Hindi, Spanish, and Arabic worldwide.

**Priority:** Medium  
**Labels:** Language, Statistics  
**Subtasks:**

* Write query for population by language
* Calculate % of total population
* Sort descending

### US5 - Capital Cities

As a user, I want to view capital cities ordered by population in a continent.

**Priority:** Medium  
**Labels:** Report, Format  
**Subtasks:**

* Format output with: Code, Name, Continent, Region, Population, Capital
* Export logic (optional)
* Include sample output

### US6 - World Statistics

As a user, I want to compare population living in cities vs not living in cities for each country.

**Priority:** Low  
**Labels:** World, Summary  
**Subtasks:**

* Simple count query
* Format output with label “World Population”

### US7 - Report Generation

As a user, I want to view cities by district ordered by population.

**Priority:** High  
**Labels:** Report, City  
**Subtasks:**

* Write SQL query to get cities ordered by population
* Include Country, District, Population in output
* Format and test output

### US8 - Report Generation

As a user, I want to view capital cities by region in descending population.

**Priority:** High  
**Labels:** Analysis, Region  
**Subtasks:**

* Calculate total region population
* Calculate city population
* Subtract to get non-city population
* Show % city vs non-city

### US9 - Data Access

As a user, I want the population of each country, region, and continent displayed with city breakdowns.

**Priority:** Low  
**Labels:** World, Summary  
**Subtasks:**

* Simple count query
* Format output with label “World Population”

### US10 - Population Reports

As a user, I want to get percentage of population living in cities for each region.

**Priority:** Low  
**Labels:** Testing, Quality  
**Subtasks:**

* Write test cases for US01–US05
* Add assertion for query results