**System Design Document - rev 1.0**

**Animal Simulation**

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# 1. Introduction

## 1.1 Purpose

The purpose of this design is to model a virtual environment that represents the food chain for animals that live in the prairies of Canada. No external forces such as weather will affect our system.

## 1.2 Design Goals

* The virtual world consists of a 2D environment that is 150 km x 150 km.
* Our food chain will consist of a finite number of animals.
* Any animals that have wings will be able to travel at max 5 km per day.
* Any animals without wings will be able to travel at max 3 km per day.
* Insects are able to travel 1 km.
* Every living thing must eat something lower than itself on the food chain within 2 days otherwise it dies.
* Animals can’t reproduce. Everything will eventually die.
* At the end of each day a status report will be printed letting the user know what animals are currently alive and where they are situated on the 150x150km grid.

# 2. Current Software Architecture

This is a new design, there was a not a previous version.

# 3. Proposed Software Architecture

## 3.1 Overview

This project will utilize the Java programming language and be able to run on a personal computer.

## 3.2 Subsystem Decomposition

See the below UML diagram:

## 3.3 Boundary Conditions

When first using the simulation, the user will be prompted to populate the world with various amounts of different animals from the food chain. If the user prescribes a value that is above a certain predefined threshold, an error will occur. Example: A user wants to generate 200 Wolves when the max amount that the program will allow is 30.