

Epidemiological Modeling Portal



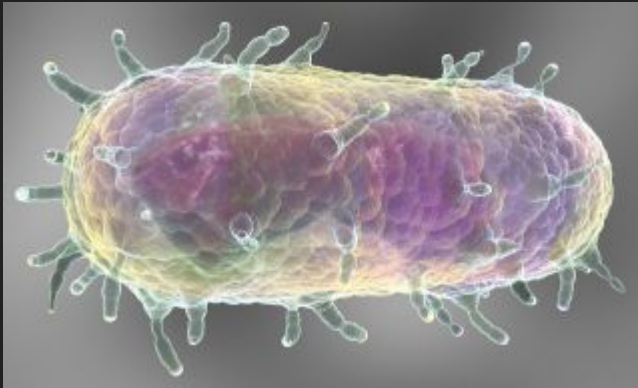
Pandemic Processing

Tanner Massahos, Joseph Eppinger, Anthony Schroeder
Mentor: Dr. Eck Doerry

Introduction

Plagues

- Plague of Justinian in 541 and lasted 200 years.
 - 25-50 million deaths
- Black Death during 1347-1350
 - Killed ~60% of the European population



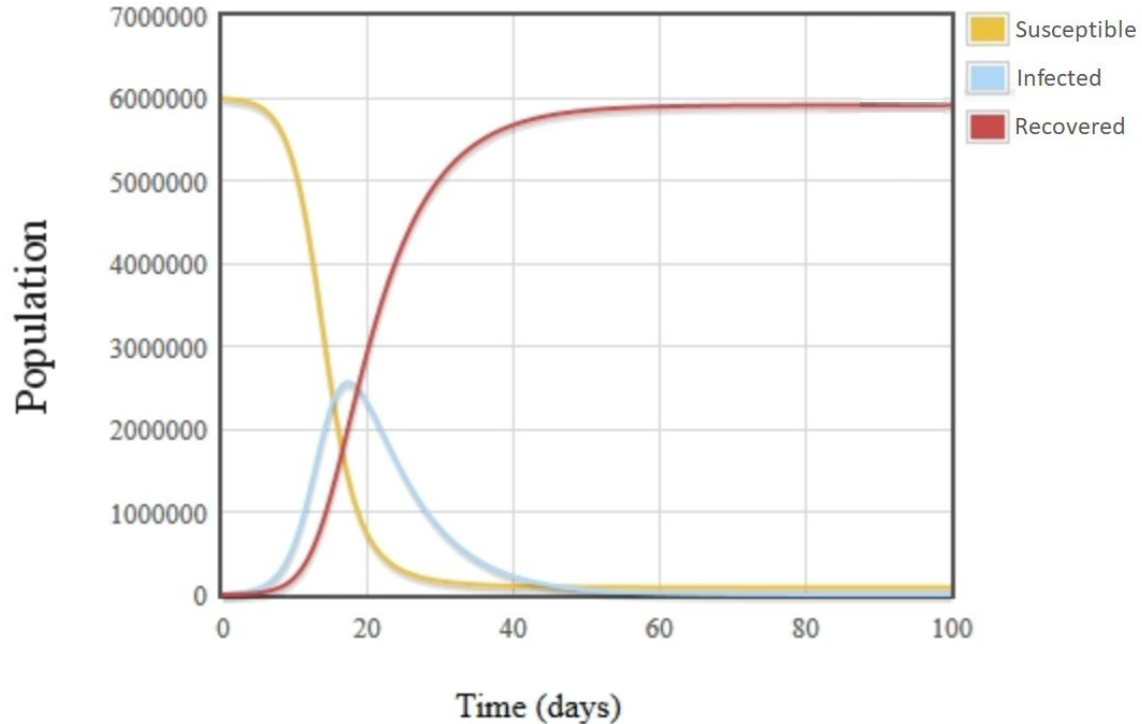
West Africa Ebola Outbreak

- Occurred December 2013 - June 2016
- 11,310 total deaths

How epidemiologists alleviate this issue

- Epidemiologists generate mathematical models to show the spread of infectious disease.
- These models can be used to predict the best time to vaccinate against infectious diseases.
- Proper timing is imperative to prevent the spread of infection.

SIR Model for Ebola



Assumptions made:

- 6 million person population
- 100 day timeline
- Death or recovery 7 days after initial infection begins

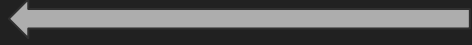
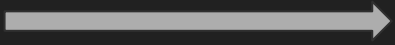
Our Client

Dr. Joseph Mihaljevic:

- Assistant professor in SICCS
- Researches and collects data concerning the spread of infectious disease
- Primary focus:
 - Ecological preservation through biocontrol
 - Controlling outbreaks of infectious disease



Modeling in Reality



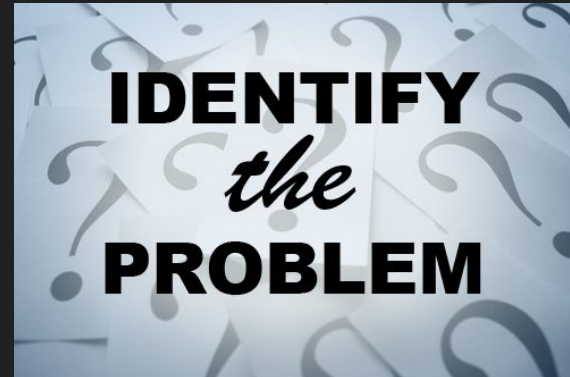
**ACTION
PLAN**



The Problem

The current methodology doesn't allow:

- Epidemiologists lack an efficient way to share their models
- These models can only appear in static form
- Discussion with the entire community only begins at publication
- Tension between collaboration and competition in research



EON: Epidemic Observation Network



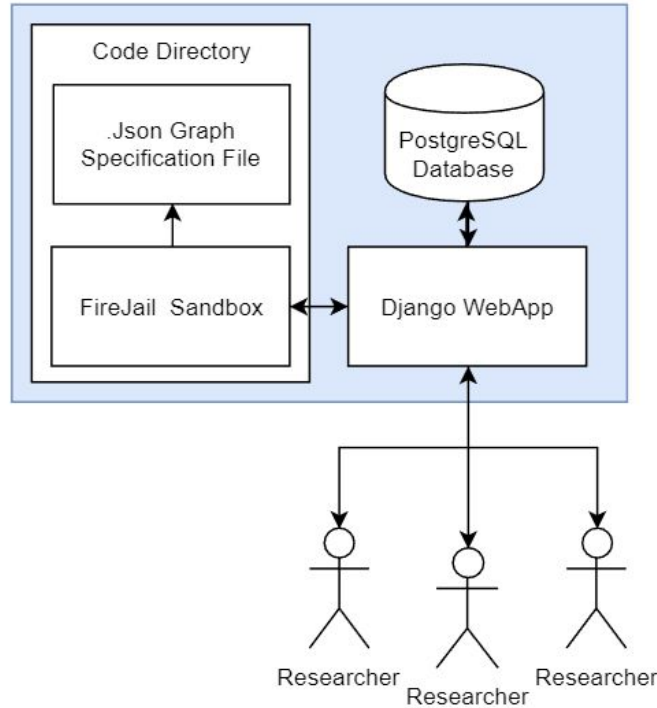
Key Requirements

Key top-level requirements:

- User accounts and management
- Model creation, manipulation, and exploration
- Forums for model discussion
- Must be able to securely run and execute model code
- Fine grained access control to models and discussions

Total number of requirements and sub-requirements: 152

EON System Architecture



Prototype Review



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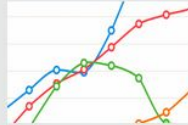
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Joseph's Profile



About Joseph

Name: Joseph Mihajevic

Email: J.Mihaljevic@nau.edu

Biography:

I am a professor in SICCS at Northern Arizona University. I am interested in using biocontrol to preserve native wildlife.

Affiliation: Northern Arizona University

Prototype Review



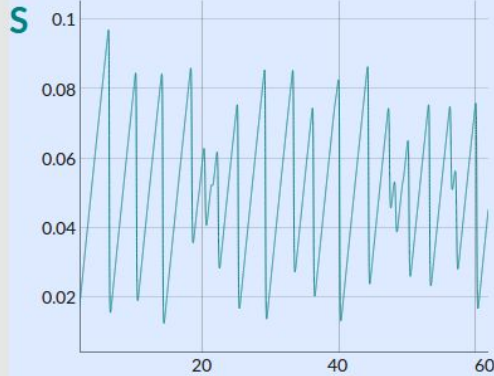
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nyear **110.81532875**

beta1 **0.297299385**

Thread Name: Seasonal_SIR

Author: testuser

Posted at: April 4, 2019, 11:40 a.m.

Auto generated first post for model: Seasonal SIR

Prototype Review



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Group name: Biocontrol Patrol

About: A group to explore ecological preservation through biocontrol

Members: [Edit Member Privileges](#)

joe [view](#)

Invite Friends:

No Friends outside the group found!!

Join Group Requests: [Search for users to Invite](#)

Prototype Review

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Thread Name: Seasonal_SIR

Author: joe

Posted at: April 2, 2019, 11:17 a.m.

Auto generated first post for model: Seasonal_SIR

Posted by: Tanner
Created at: April 11, 2019, 12:07 p.m.

Have you tried setting the initial beta parameter to .2?

Reply

Posted by: joe
Created at: April 11, 2019, 12:08 p.m.

Seems interesting!

Reply

B I U S X² X³ X⁴ X⁵ X⁶ X⁷ X⁸ X⁹ X¹⁰ X¹¹ X¹² X¹³ X¹⁴ X¹⁵ X¹⁶ X¹⁷ X¹⁸ X¹⁹ X²⁰ X²¹ X²² X²³ X²⁴ X²⁵ X²⁶ X²⁷ X²⁸ X²⁹ X³⁰ X³¹ X³² X³³ X³⁴ X³⁵ X³⁶ X³⁷ X³⁸ X³⁹ X⁴⁰ X⁴¹ X⁴² X⁴³ X⁴⁴ X⁴⁵ X⁴⁶ X⁴⁷ X⁴⁸ X⁴⁹ X⁵⁰ X⁵¹ X⁵² X⁵³ X⁵⁴ X⁵⁵ X⁵⁶ X⁵⁷ X⁵⁸ X⁵⁹ X⁶⁰ X⁶¹ X⁶² X⁶³ X⁶⁴ X⁶⁵ X⁶⁶ X⁶⁷ X⁶⁸ X⁶⁹ X⁷⁰ X⁷¹ X⁷² X⁷³ X⁷⁴ X⁷⁵ X⁷⁶ X⁷⁷ X⁷⁸ X⁷⁹ X⁸⁰ X⁸¹ X⁸² X⁸³ X⁸⁴ X⁸⁵ X⁸⁶ X⁸⁷ X⁸⁸ X⁸⁹ X⁹⁰ X⁹¹ X⁹² X⁹³ X⁹⁴ X⁹⁵ X⁹⁶ X⁹⁷ X⁹⁸ X⁹⁹ X¹⁰⁰ X¹⁰¹ X¹⁰² X¹⁰³ X¹⁰⁴ X¹⁰⁵ X¹⁰⁶ X¹⁰⁷ X¹⁰⁸ X¹⁰⁹ X¹¹⁰ X¹¹¹ X¹¹² X¹¹³ X¹¹⁴ X¹¹⁵ X¹¹⁶ X¹¹⁷ X¹¹⁸ X¹¹⁹ X¹²⁰ X¹²¹ X¹²² X¹²³ X¹²⁴ X¹²⁵ X¹²⁶ X¹²⁷ X¹²⁸ X¹²⁹ X¹³⁰ X¹³¹ X¹³² X¹³³ X¹³⁴ X¹³⁵ X¹³⁶ X¹³⁷ X¹³⁸ X¹³⁹ X¹⁴⁰ X¹⁴¹ X¹⁴² X¹⁴³ X¹⁴⁴ X¹⁴⁵ X¹⁴⁶ X¹⁴⁷ X¹⁴⁸ X¹⁴⁹ X¹⁵⁰ X¹⁵¹ X¹⁵² X¹⁵³ X¹⁵⁴ X¹⁵⁵ X¹⁵⁶ X¹⁵⁷ X¹⁵⁸ X¹⁵⁹ X¹⁶⁰ X¹⁶¹ X¹⁶² X¹⁶³ X¹⁶⁴ X¹⁶⁵ X¹⁶⁶ X¹⁶⁷ X¹⁶⁸ X¹⁶⁹ X¹⁷⁰ X¹⁷¹ X¹⁷² X¹⁷³ X¹⁷⁴ X¹⁷⁵ X¹⁷⁶ X¹⁷⁷ X¹⁷⁸ X¹⁷⁹ X¹⁸⁰ X¹⁸¹ X¹⁸² X¹⁸³ X¹⁸⁴ X¹⁸⁵ X¹⁸⁶ X¹⁸⁷ X¹⁸⁸ X¹⁸⁹ X¹⁹⁰ X¹⁹¹ X¹⁹² X¹⁹³ X¹⁹⁴ X¹⁹⁵ X¹⁹⁶ X¹⁹⁷ X¹⁹⁸ X¹⁹⁹ X²⁰⁰ X²⁰¹ X²⁰² X²⁰³ X²⁰⁴ X²⁰⁵ X²⁰⁶ X²⁰⁷ X²⁰⁸ X²⁰⁹ X²¹⁰ X²¹¹ X²¹² X²¹³ X²¹⁴ X²¹⁵ X²¹⁶ X²¹⁷ X²¹⁸ X²¹⁹ X²²⁰ X²²¹ X²²² X²²³ X²²⁴ X²²⁵ X²²⁶ X²²⁷ X²²⁸ X²²⁹ X²³⁰ X²³¹ X²³² X²³³ X²³⁴ X²³⁵ X²³⁶ X²³⁷ X²³⁸ X²³⁹ X²⁴⁰ X²⁴¹ X²⁴² X²⁴³ X²⁴⁴ X²⁴⁵ X²⁴⁶ X²⁴⁷ X²⁴⁸ X²⁴⁹ X²⁵⁰ X²⁵¹ X²⁵² X²⁵³ X²⁵⁴ X²⁵⁵ X²⁵⁶ X²⁵⁷ X²⁵⁸ X²⁵⁹ X²⁶⁰ X²⁶¹ X²⁶² X²⁶³ X²⁶⁴ X²⁶⁵ X²⁶⁶ X²⁶⁷ X²⁶⁸ X²⁶⁹ X²⁷⁰ X²⁷¹ X²⁷² X²⁷³ X²⁷⁴ X²⁷⁵ X²⁷⁶ X²⁷⁷ X²⁷⁸ X²⁷⁹ X²⁸⁰ X²⁸¹ X²⁸² X²⁸³ X²⁸⁴ X²⁸⁵ X²⁸⁶ X²⁸⁷ X²⁸⁸ X²⁸⁹ X²⁹⁰ X²⁹¹ X²⁹² X²⁹³ X²⁹⁴ X²⁹⁵ X²⁹⁶ X²⁹⁷ X²⁹⁸ X²⁹⁹ X³⁰⁰ X³⁰¹ X³⁰² X³⁰³ X³⁰⁴ X³⁰⁵ X³⁰⁶ X³⁰⁷ X³⁰⁸ X³⁰⁹ X³¹⁰ X³¹¹ X³¹² X³¹³ X³¹⁴ X³¹⁵ X³¹⁶ X³¹⁷ X³¹⁸ X³¹⁹ X³²⁰ X³²¹ X³²² X³²³ X³²⁴ X³²⁵ X³²⁶ X³²⁷ X³²⁸ X³²⁹ X³³⁰ X³³¹ X³³² X³³³ X³³⁴ X³³⁵ X³³⁶ X³³⁷ X³³⁸ X³³⁹ X³⁴⁰ X³⁴¹ X³⁴² X³⁴³ X³⁴⁴ X³⁴⁵ X³⁴⁶ X³⁴⁷ X³⁴⁸ X³⁴⁹ X³⁵⁰ X³⁵¹ X³⁵² X³⁵³ X³⁵⁴ X³⁵⁵ X³⁵⁶ X³⁵⁷ X³⁵⁸ X³⁵⁹ X³⁶⁰ X³⁶¹ X³⁶² X³⁶³ X³⁶⁴ X³⁶⁵ X³⁶⁶ X³⁶⁷ X³⁶⁸ X³⁶⁹ X³⁷⁰ X³⁷¹ X³⁷² X³⁷³ X³⁷⁴ X³⁷⁵ X³⁷⁶ X³⁷⁷ X³⁷⁸ X³⁷⁹ X³⁸⁰ X³⁸¹ X³⁸² X³⁸³ X³⁸⁴ X³⁸⁵ X³⁸⁶ X³⁸⁷ X³⁸⁸ X³⁸⁹ X³⁹⁰ X³⁹¹ X³⁹² X³⁹³ X³⁹⁴ X³⁹⁵ X³⁹⁶ X³⁹⁷ X³⁹⁸ X³⁹⁹ X⁴⁰⁰ X⁴⁰¹ X⁴⁰² X⁴⁰³ X⁴⁰⁴ X⁴⁰⁵ X⁴⁰⁶ X⁴⁰⁷ X⁴⁰⁸ X⁴⁰⁹ X⁴¹⁰ X⁴¹¹ X⁴¹² X⁴¹³ X⁴¹⁴ X⁴¹⁵ X⁴¹⁶ X⁴¹⁷ X⁴¹⁸ X⁴¹⁹ X⁴²⁰ X⁴²¹ X⁴²² X⁴²³ X⁴²⁴ X⁴²⁵ X⁴²⁶ X⁴²⁷ X⁴²⁸ X⁴²⁹ X⁴³⁰ X⁴³¹ X⁴³² X⁴³³ X⁴³⁴ X⁴³⁵ X⁴³⁶ X⁴³⁷ X⁴³⁸ X⁴³⁹ X⁴⁴⁰ X⁴⁴¹ X⁴⁴² X⁴⁴³ X⁴⁴⁴ X⁴⁴⁵ X⁴⁴⁶ X⁴⁴⁷ X⁴⁴⁸ X⁴⁴⁹ X⁴⁵⁰ X⁴⁵¹ X⁴⁵² X⁴⁵³ X⁴⁵⁴ X⁴⁵⁵ X⁴⁵⁶ X⁴⁵⁷ X⁴⁵⁸ X⁴⁵⁹ X⁴⁶⁰ X⁴⁶¹ X⁴⁶² X⁴⁶³ X⁴⁶⁴ X⁴⁶⁵ X⁴⁶⁶ X⁴⁶⁷ X⁴⁶⁸ X⁴⁶⁹ X⁴⁷⁰ X⁴⁷¹ X⁴⁷² X⁴⁷³ X⁴⁷⁴ X⁴⁷⁵ X⁴⁷⁶ X⁴⁷⁷ X⁴⁷⁸ X⁴⁷⁹ X⁴⁸⁰ X⁴⁸¹ X⁴⁸² X⁴⁸³ X⁴⁸⁴ X⁴⁸⁵ X⁴⁸⁶ X⁴⁸⁷ X⁴⁸⁸ X⁴⁸⁹ X⁴⁹⁰ X⁴⁹¹ X⁴⁹² X⁴⁹³ X⁴⁹⁴ X⁴⁹⁵ X⁴⁹⁶ X⁴⁹⁷ X⁴⁹⁸ X⁴⁹⁹ X⁵⁰⁰ X⁵⁰¹ X⁵⁰² X⁵⁰³ X⁵⁰⁴ X⁵⁰⁵ X⁵⁰⁶ X⁵⁰⁷ X⁵⁰⁸ X⁵⁰⁹ X⁵¹⁰ X⁵¹¹ X⁵¹² X⁵¹³ X⁵¹⁴ X⁵¹⁵ X⁵¹⁶ X⁵¹⁷ X⁵¹⁸ X⁵¹⁹ X⁵²⁰ X⁵²¹ X⁵²² X⁵²³ X⁵²⁴ X⁵²⁵ X⁵²⁶ X⁵²⁷ X⁵²⁸ X⁵²⁹ X⁵³⁰ X⁵³¹ X⁵³² X⁵³³ X⁵³⁴ X⁵³⁵ X⁵³⁶ X⁵³⁷ X⁵³⁸ X⁵³⁹ X⁵⁴⁰ X⁵⁴¹ X⁵⁴² X⁵⁴³ X⁵⁴⁴ X⁵⁴⁵ X⁵⁴⁶ X⁵⁴⁷ X⁵⁴⁸ X⁵⁴⁹ X⁵⁵⁰ X⁵⁵¹ X⁵⁵² X⁵⁵³ X⁵⁵⁴ X⁵⁵⁵ X⁵⁵⁶ X⁵⁵⁷ X⁵⁵⁸ X⁵⁵⁹ X⁵⁶⁰ X⁵⁶¹ X⁵⁶² X⁵⁶³ X⁵⁶⁴ X⁵⁶⁵ X⁵⁶⁶ X⁵⁶⁷ X⁵⁶⁸ X⁵⁶⁹ X⁵⁷⁰ X⁵⁷¹ X⁵⁷² X⁵⁷³ X⁵⁷⁴ X⁵⁷⁵ X⁵⁷⁶ X⁵⁷⁷ X⁵⁷⁸ X⁵⁷⁹ X⁵⁸⁰ X⁵⁸¹ X⁵⁸² X⁵⁸³ X⁵⁸⁴ X⁵⁸⁵ X⁵⁸⁶ X⁵⁸⁷ X⁵⁸⁸ X⁵⁸⁹ X⁵⁹⁰ X⁵⁹¹ X⁵⁹² X⁵⁹³ X⁵⁹⁴ X⁵⁹⁵ X⁵⁹⁶ X⁵⁹⁷ X⁵⁹⁸ X⁵⁹⁹ X⁶⁰⁰ X⁶⁰¹ X⁶⁰² X⁶⁰³ X⁶⁰⁴ X⁶⁰⁵ X⁶⁰⁶ X⁶⁰⁷ X⁶⁰⁸ X⁶⁰⁹ X⁶¹⁰ X⁶¹¹ X⁶¹² X⁶¹³ X⁶¹⁴ X⁶¹⁵ X⁶¹⁶ X⁶¹⁷ X⁶¹⁸ X⁶¹⁹ X⁶²⁰ X⁶²¹ X⁶²² X⁶²³ X⁶²⁴ X⁶²⁵ X⁶²⁶ X⁶²⁷ X⁶²⁸ X⁶²⁹ X⁶³⁰ X⁶³¹ X⁶³² X⁶³³ X⁶³⁴ X⁶³⁵ X⁶³⁶ X⁶³⁷ X⁶³⁸ X⁶³⁹ X⁶⁴⁰ X⁶⁴¹ X⁶⁴² X⁶⁴³ X⁶⁴⁴ X⁶⁴⁵ X⁶⁴⁶ X⁶⁴⁷ X⁶⁴⁸ X⁶⁴⁹ X⁶⁵⁰ X⁶⁵¹ X⁶⁵² X⁶⁵³ X⁶⁵⁴ X⁶⁵⁵ X⁶⁵⁶ X⁶⁵⁷ X⁶⁵⁸ X⁶⁵⁹ X⁶⁶⁰ X⁶⁶¹ X⁶⁶² X⁶⁶³ X⁶⁶⁴ X⁶⁶⁵ X⁶⁶⁶ X⁶⁶⁷ X⁶⁶⁸ X⁶⁶⁹ X⁶⁷⁰ X⁶⁷¹ X⁶⁷² X⁶⁷³ X⁶⁷⁴ X⁶⁷⁵ X⁶⁷⁶ X⁶⁷⁷ X⁶⁷⁸ X⁶⁷⁹ X⁶⁸⁰ X⁶⁸¹ X⁶⁸² X⁶⁸³ X⁶⁸⁴ X⁶⁸⁵ X⁶⁸⁶ X⁶⁸⁷ X⁶⁸⁸ X⁶⁸⁹ X⁶⁹⁰ X⁶⁹¹ X⁶⁹² X⁶⁹³ X⁶⁹⁴ X⁶⁹⁵ X⁶⁹⁶ X⁶⁹⁷ X⁶⁹⁸ X⁶⁹⁹ X⁷⁰⁰ X⁷⁰¹ X⁷⁰² X⁷⁰³ X⁷⁰⁴ X⁷⁰⁵ X⁷⁰⁶ X⁷⁰⁷ X⁷⁰⁸ X⁷⁰⁹ X⁷¹⁰ X⁷¹¹ X⁷¹² X⁷¹³ X⁷¹⁴ X⁷¹⁵ X⁷¹⁶ X⁷¹⁷ X⁷¹⁸ X⁷¹⁹ X⁷²⁰ X⁷²¹ X⁷²² X⁷²³ X⁷²⁴ X⁷²⁵ X⁷²⁶ X⁷²⁷ X⁷²⁸ X⁷²⁹ X⁷³⁰ X⁷³¹ X⁷³² X⁷³³ X⁷³⁴ X⁷³⁵ X⁷³⁶ X⁷³⁷ X⁷³⁸ X⁷³⁹ X⁷⁴⁰ X⁷⁴¹ X⁷⁴² X⁷⁴³ X⁷⁴⁴ X⁷⁴⁵ X⁷⁴⁶ X⁷⁴⁷ X⁷⁴⁸ X⁷⁴⁹ X⁷⁵⁰ X⁷⁵¹ X⁷⁵² X⁷⁵³ X⁷⁵⁴ X⁷⁵⁵ X⁷⁵⁶ X⁷⁵⁷ X⁷⁵⁸ X⁷⁵⁹ X⁷⁶⁰ X⁷⁶¹ X⁷⁶² X⁷⁶³ X⁷⁶⁴ X⁷⁶⁵ X⁷⁶⁶ X⁷⁶⁷ X⁷⁶⁸ X⁷⁶⁹ X⁷⁷⁰ X⁷⁷¹ X⁷⁷² X⁷⁷³ X⁷⁷⁴ X⁷⁷⁵ X⁷⁷⁶ X⁷⁷⁷ X⁷⁷⁸ X⁷⁷⁹ X⁷⁸⁰ X⁷⁸¹ X⁷⁸² X⁷⁸³ X⁷⁸⁴ X⁷⁸⁵ X⁷⁸⁶ X⁷⁸⁷ X⁷⁸⁸ X⁷⁸⁹ X⁷⁹⁰ X⁷⁹¹ X⁷⁹² X⁷⁹³ X⁷⁹⁴ X⁷⁹⁵ X⁷⁹⁶ X⁷⁹⁷ X⁷⁹⁸ X⁷⁹⁹ X⁸⁰⁰ X⁸⁰¹ X⁸⁰² X⁸⁰³ X⁸⁰⁴ X⁸⁰⁵ X⁸⁰⁶ X⁸⁰⁷ X⁸⁰⁸ X⁸⁰⁹ X⁸¹⁰ X⁸¹¹ X⁸¹² X⁸¹³ X⁸¹⁴ X⁸¹⁵ X⁸¹⁶ X⁸¹⁷ X⁸¹⁸ X⁸¹⁹ X⁸²⁰ X⁸²¹ X⁸²² X⁸²³ X⁸²⁴ X⁸²⁵ X⁸²⁶ X⁸²⁷ X⁸²⁸ X⁸²⁹ X⁸³⁰ X⁸³¹ X⁸³² X⁸³³ X⁸³⁴ X⁸³⁵ X⁸³⁶ X⁸³⁷ X⁸³⁸ X⁸³⁹ X⁸⁴⁰ X⁸⁴¹ X⁸⁴² X⁸⁴³ X⁸⁴⁴ X⁸⁴⁵ X⁸⁴⁶ X⁸⁴⁷ X⁸⁴⁸ X⁸⁴⁹ X⁸⁵⁰ X⁸⁵¹ X⁸⁵² X⁸⁵³ X⁸⁵⁴ X⁸⁵⁵ X⁸⁵⁶ X⁸⁵⁷ X⁸⁵⁸ X⁸⁵⁹ X⁸⁶⁰ X⁸⁶¹ X⁸⁶² X⁸⁶³ X⁸⁶⁴ X⁸⁶⁵ X⁸⁶⁶ X⁸⁶⁷ X⁸⁶⁸ X⁸⁶⁹ X⁸⁷⁰ X⁸⁷¹ X⁸⁷² X⁸⁷³ X⁸⁷⁴ X⁸⁷⁵ X⁸⁷⁶ X⁸⁷⁷ X⁸⁷⁸ X⁸⁷⁹ X⁸⁸⁰ X⁸⁸¹ X⁸⁸² X⁸⁸³ X⁸⁸⁴ X⁸⁸⁵ X⁸⁸⁶ X⁸⁸⁷ X⁸⁸⁸ X⁸⁸⁹ X⁸⁹⁰ X⁸⁹¹ X⁸⁹² X⁸⁹³ X⁸⁹⁴ X⁸⁹⁵ X⁸⁹⁶ X⁸⁹⁷ X⁸⁹⁸ X⁸⁹⁹ X⁹⁰⁰ X⁹⁰¹ X⁹⁰² X⁹⁰³ X⁹⁰⁴ X⁹⁰⁵ X⁹⁰⁶ X⁹⁰⁷ X⁹⁰⁸ X⁹⁰⁹ X⁹¹⁰ X⁹¹¹ X⁹¹² X⁹¹³ X⁹¹⁴ X⁹¹⁵ X⁹¹⁶ X⁹¹⁷ X⁹¹⁸ X⁹¹⁹ X⁹²⁰ X⁹²¹ X⁹²² X⁹²³ X⁹²⁴ X⁹²⁵ X⁹²⁶ X⁹²⁷ X⁹²⁸ X⁹²⁹ X⁹³⁰ X⁹³¹ X⁹³² X⁹³³ X⁹³⁴ X⁹³⁵ X⁹³⁶ X⁹³⁷ X⁹³⁸ X⁹³⁹ X⁹⁴⁰ X⁹⁴¹ X⁹⁴² X⁹⁴³ X⁹⁴⁴ X⁹⁴⁵ X⁹⁴⁶ X⁹⁴⁷ X⁹⁴⁸ X⁹⁴⁹ X⁹⁵⁰ X⁹⁵¹ X⁹⁵² X⁹⁵³ X⁹⁵⁴ X⁹⁵⁵ X⁹⁵⁶ X⁹⁵⁷ X⁹⁵⁸ X⁹⁵⁹ X⁹⁶⁰ X⁹⁶¹ X⁹⁶² X⁹⁶³ X⁹⁶⁴ X⁹⁶⁵ X⁹⁶⁶ X⁹⁶⁷ X⁹⁶⁸ X⁹⁶⁹ X⁹⁷⁰ X⁹⁷¹ X⁹⁷² X⁹⁷³ X⁹⁷⁴ X⁹⁷⁵ X⁹⁷⁶ X⁹⁷⁷ X⁹⁷⁸ X⁹⁷⁹ X⁹⁸⁰ X⁹⁸¹ X⁹⁸² X⁹⁸³ X⁹⁸⁴ X⁹⁸⁵ X⁹⁸⁶ X⁹⁸⁷ X⁹⁸⁸ X⁹⁸⁹ X⁹⁹⁰ X⁹⁹¹ X⁹⁹² X⁹⁹³ X⁹⁹⁴ X⁹⁹⁵ X⁹⁹⁶ X⁹⁹⁷ X⁹⁹⁸ X⁹⁹⁹ X¹⁰⁰⁰

Testing and Validation

Unit Testing

- Validate the View, Model, and HTML Template for each individual Django application.
- 23 different Unit tests.

Integration Testing

- Test functionality that requires multiple applications.
- 7 Integration tests.

Usability Testing

- Evaluate the ease of use, with UserTesting.
- About 15 test users from Dr.M's class.

User Testing methodology

- We asked test users to perform various tasks such as:

Task 4: Create a group

1. Navigate to the "Groups" page
2. It doesn't seem like you are in a group, create your own.
3. Verify your group now has a dashboard and appears on the groups page.

Question 4: To prove our system has successfully created your group, what is your group name and did you seem to have any trouble?

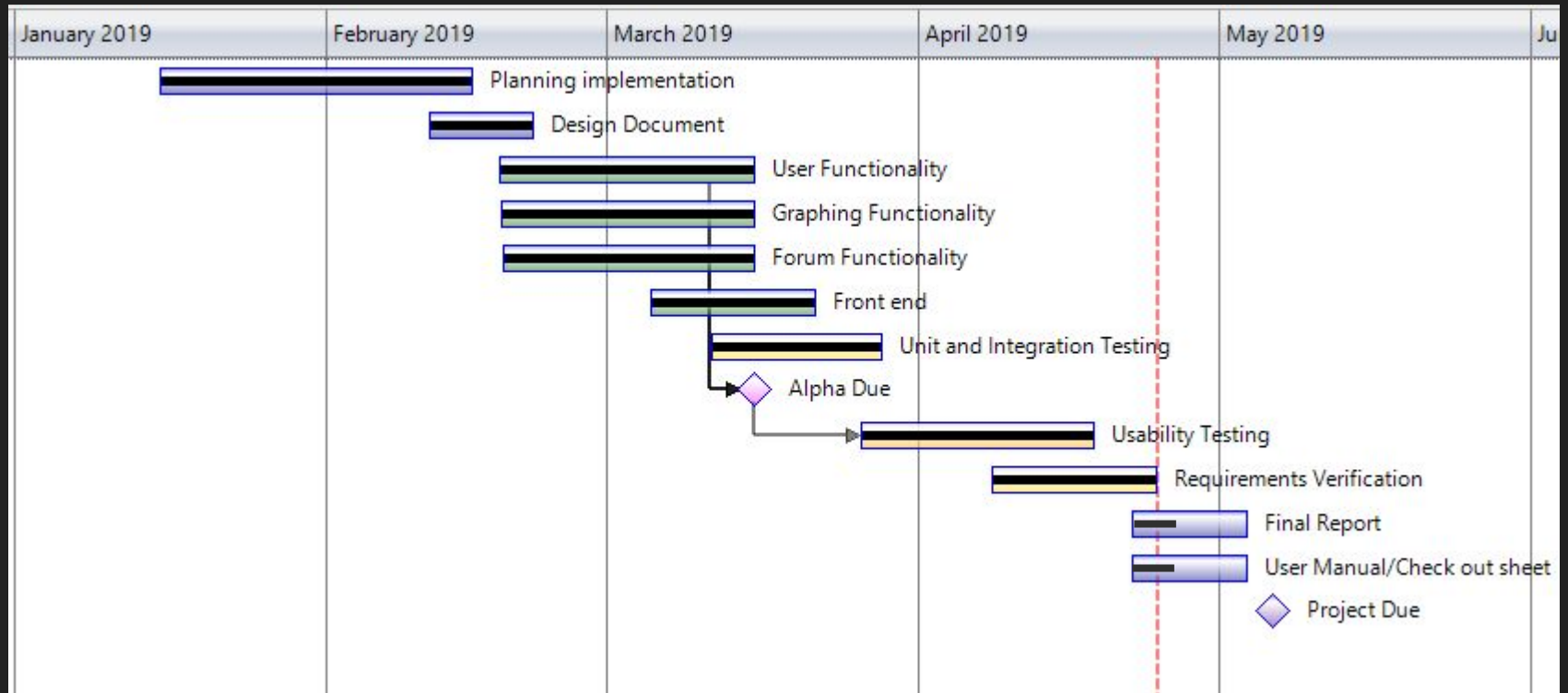
- 15+ unique issues found through user testing.

Challenges and Solutions

- ✓ Individuals uploading/downloading malicious code
 - Models will be ran within a FireJail Sandbox.
- ✓ Difficult entry: New users may find the platform challenging to use.
 - Creation of online resources to help guide new users.
- ✓ Users wish to maintain IP rights to code
 - Models have preferences, allowing users to set models as private.
- ✓ Singular point of reference
 - User testing with outside perspective.



Project Schedule



EON's Effects

- Epidemiology is important when it comes to lessening the number of deaths due to infectious disease.
- EON will be a valuable resource for the future of epidemiology

Impacts

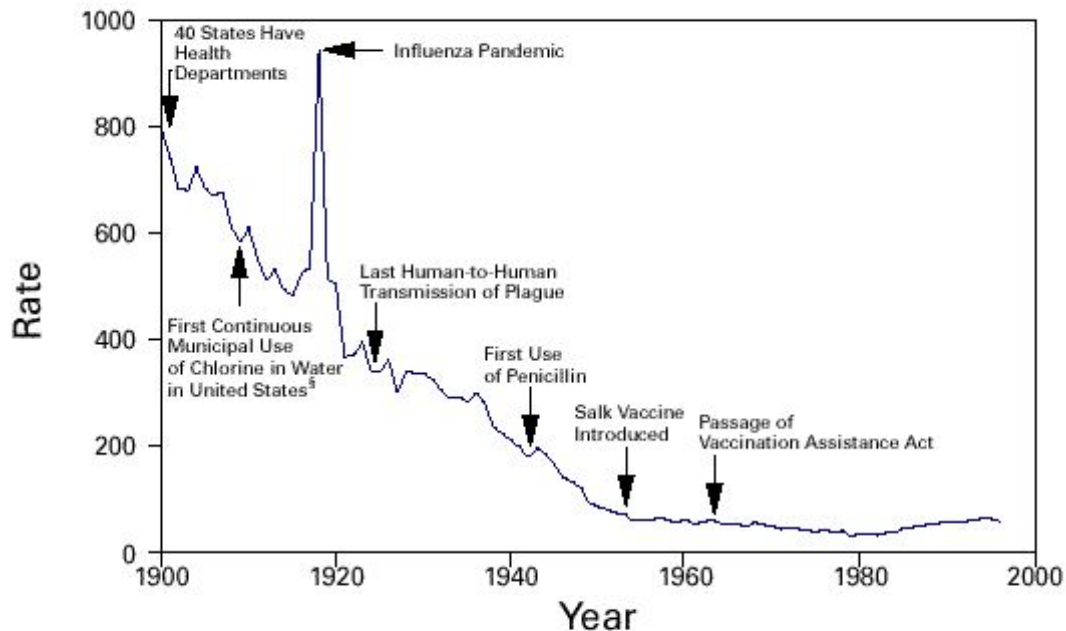
- Informatics cornerstone for the community
- Product that could be adopted by CDC

Value to Client

- Plans to pursue further funding to develop our prototype
- As a team we have put in 500+ hours for product development

Conclusion

FIGURE 1. Crude death rate* for infectious diseases — United States, 1900–1996†

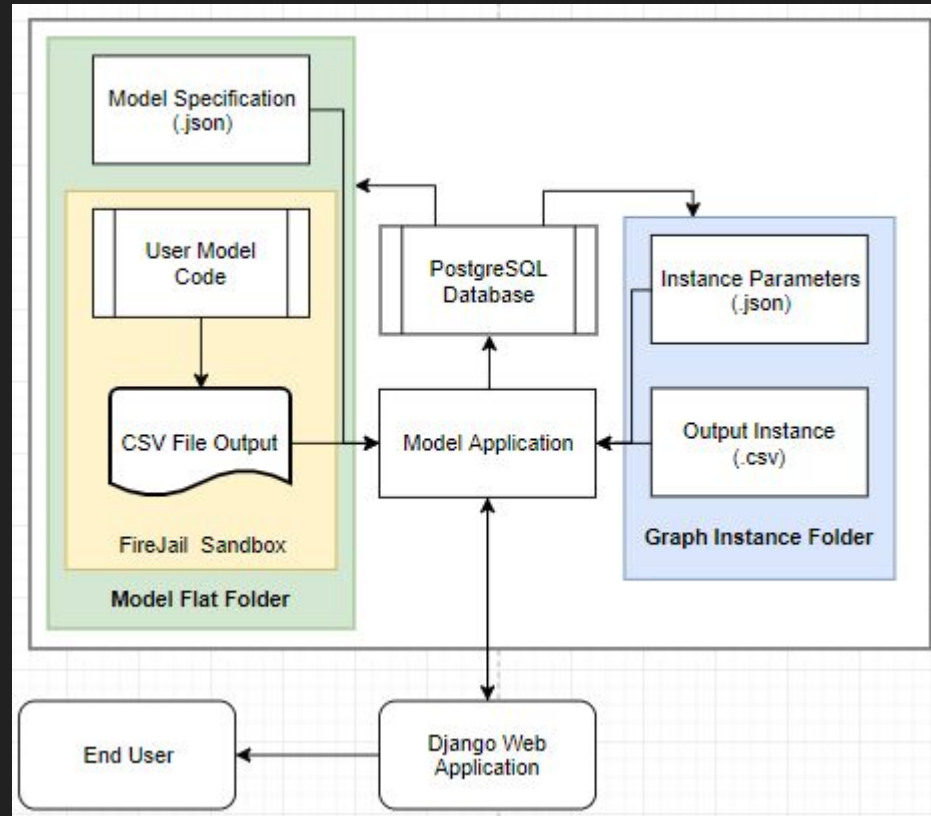


*Per 100,000 population per year.

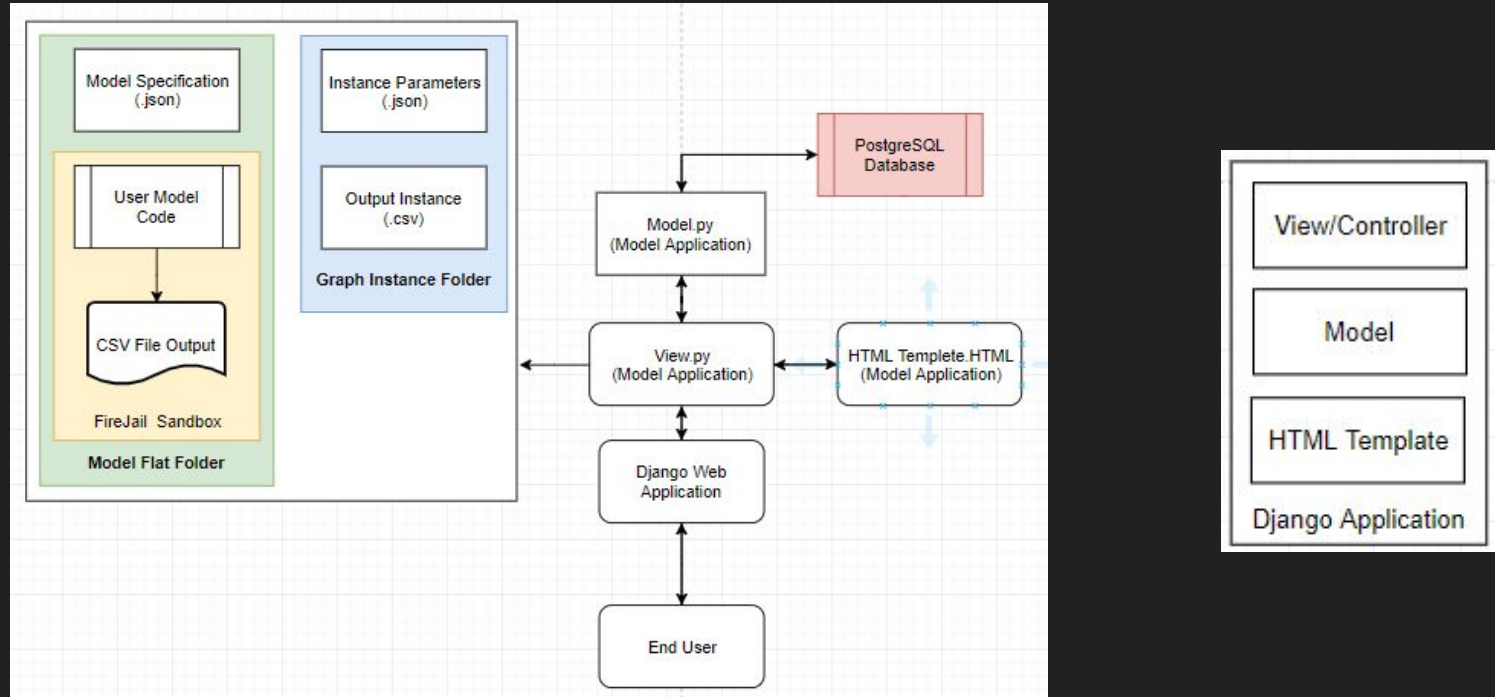
†Adapted from Armstrong GL, Conn LA, Pinner RW. Trends in infectious disease mortality in the United States during the 20th century. *JAMA* 1999;281:61–6.

‡American Water Works Association. Water chlorination principles and practices: AWWA manual M20. Denver, Colorado: American Water Works Association, 1973.

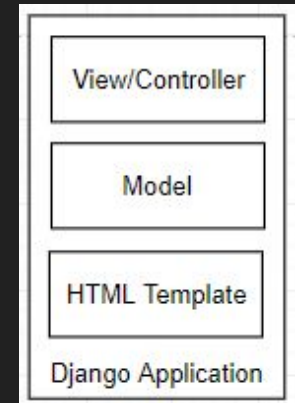
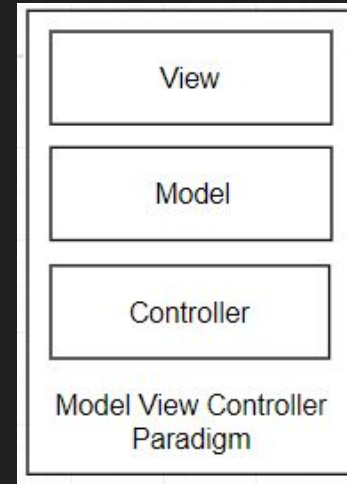
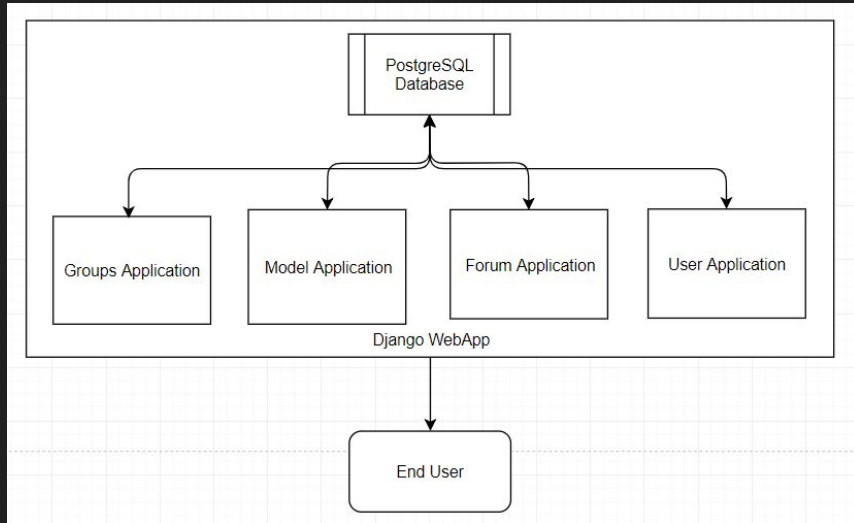
An In-depth View of Models



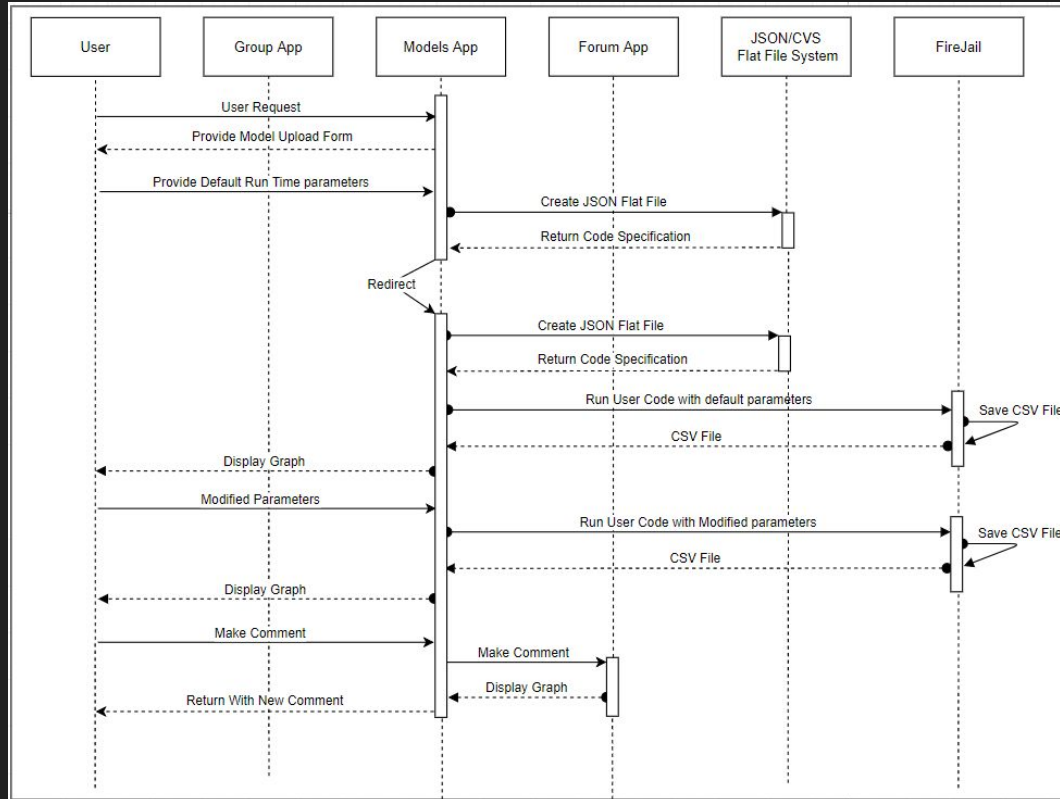
Django applications



Django applications



Upload and Run Model: Sequence Diagram



Risks/Feasibility

| Risk | Severity | Likelihood |
|---|-------------|-------------------------|
| Individuals uploading/downloading malicious code | High | Low → None |
| User's programming language not supported | Medium | Medium → Low |
| Server overloaded with running models | Medium | Low |
| Difficult entry: New users may find the platform challenging to use | High | Medium → Low |
| Users wish to maintain IP rights to code | Medium/High | Medium → Low |
| Singular point of reference | High | High → Low |