

User Documentation

Virtual Biology Lab Simulation:
Mitosis

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Introduction

This manual will describe how to install and use every component of the Virtual Biology Lab Simulation: Mitosis.

SQL

Installation

To install the necessary SQL components, do the following:

- 1) Install Microsoft SQL Server 2012 from <http://www.microsoft.com/en-us/download/details.aspx?id=29062>
- 2) Install Adventureworks 2012 from <http://msftdbprodsamples.codeplex.com/releases/view/55330>
- 3) Run SQL Server Management Studio. Right click on database, then choose attach. Select add in once in the attach window, then select find file:”AdventureWorksDW2012_Data.mdf”
- 4) You are now ready to create tables and queries using the AdventureWorks Database

JavaScript/CSS

Installation

To install the necessary website components, do the following:

- 1) Install GitHub from <https://github.com/>
- 2) Install Git Shell from <http://git-scm.com/downloads>
- 3) Run Git Shell from a command prompt
- 4) Navigate to desired directory using “cd”
- 5) Input the following commands:
 - 1) “git clone <https://github.com/aethius/VirtualBioLab.git>”
 - 2) “cd demo”
 - 3) “npm install”
- 6) Create a new file in /demo/config/ using notepad
- 7) Copy and paste the README file from the demo folder into the new folder
- 8) Save as “local.js”
- 9) Back in the Git Shell input “sails lift”

Python

Installation

To install the necessary simulation components, do the following:

- 1) Install Python 2.7 from <https://www.python.org/download/releases/2.7>
- 2) Install Pygame for Python 2.7 from <http://www.pygame.org/download.shtml>
- 3) Download the source code and graphic images from <https://www.dropbox.com/sh/xfug43jcfjxzvvc/g1oL9tV5o2>
- 4) Import all of the files into your Python folder
- 5) Run BioLabSim.py in a Python environment

Usage

To use the simulation follow these steps:

- 1) Run BioLabSim.py
- 2) Once at the Start Screen select **Start** to begin the simulation
- 3) Once you are on the next screen label the image by using your mouse to click the arrows on screen. Once completed click **Next** to advance to the next section.
- 4) Next use your mouse to click the appropriate images to prepare the onion root for examination under a microscope. Once completed click **Next** to continue.
- 5) For the next section, use your mouse to select the appropriate stage of mitosis by clicking the corresponding text. If you are sent to the Feedback page click **Back** to return to the Identifying page. Once you have completed the Identification section click **Next** to receive your grade.
- 6) Once you have seen your grade select **Quit** to exit the simulation.

HTML

Installation

- 1) Download the necessary files from <https://www.dropbox.com/sh/qef2tuaafzy2ova/AADFazk6kSdsJ9Fq58l-dYlqa/simulation>
- 2) Extract all of the contents, ensuring the png and jpeg files are in the same folder
- 3) To run the simulation select the index.html file to be brought to the start page