Riemann Sums

Created by Tyson Levy and Matthew Swartz

Introduction

If you are reading this, then congratulations! You have successfully downloaded the Riemann Sums Demo! This project was created for STEAM and is intended for Calculus teachers teaching the basics of Integrals and Riemann Sums.

Starting Out

Just because you have the files installed doesn't meant that the program is ready to run though. The program uses Python 3, which might not be installed on your computer. To quickly check, try running the program "RiemannSums" and if you get any error messages, then you don't have Python 3 installed on your device. Don't worry, we'll go through how to install Python 3 safely on your device.

Installing Python 3

Step 1: Go to https://www.python.org/downloads/ Python's official download location. If you are not using Windows, there are other options available too by clicking here:
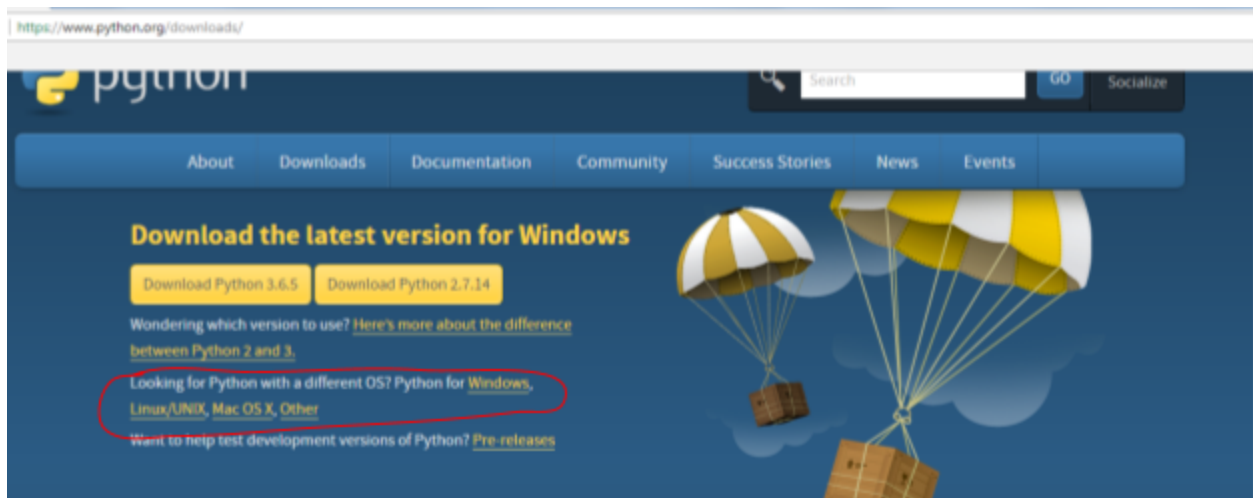
We recommend you download and run the latest version of Python 3.X.X.

Step 2: Make sure to select "Install Now" with the recommended settings.

Once the download is complete you should see this:

You should be good to go now, just run "RiemannSums" and you should see something like this:

How to use the Program

This program lets you type in your own functions, select the width of the rectangles, and the x range of the graph. The rectangles will automatically draw and calculate the approximated area. You can use this to show how when the rectangles get skinnier, the approximated area gets more accurate.

Important When typing in functions, please refrain from typing kust constants ex. "3" or "x-x", doing so will cause an error and the graph will disappear, but will not crash the program. Just know if you accidentally do this, you can just type in a valid function and it will be fixed. Also if a function you type causes an error and you don't think it should, just use parentheses to make sure everything is grouped as it should be. If the y-range of the function does not include "0", then the 0 bar will not be drawn, so to avoid confusion, try not to use functions that do this, even though it still calculates the area correctly. And if the "0" bar would be above the graph, the rectangles will draw out of bounds of the graph area, causing some visual issues. If the function is not continuous on the range given, the graph will not draw, so try and avoid using these functions as well.

Other that those things, feel free to try as many functions as you like. Thank you for using this program to help visually teach your students about how Riemann Sums work.