Problem: 2 Application - 'math api'

Pre-requisites: a. Python3
b. Flask
c. Curl

Considerations:

a. Quantifier is always positive, negative quantifier doesn't return anything
b. Operations are performed on non-empty lists. Empty list doesn't return anything.

a. What is built

A Web application to perform different math functions like min, max, avg, avg, median and percentile. Web application is created with the help of Flask framework and tested used Curl

b. How is it built

After having the programming environment setup, flask web application is created under the file name 'web.py'. All the 5 functions are executed from the same file.

Firstly, have imported the needed packages as below:

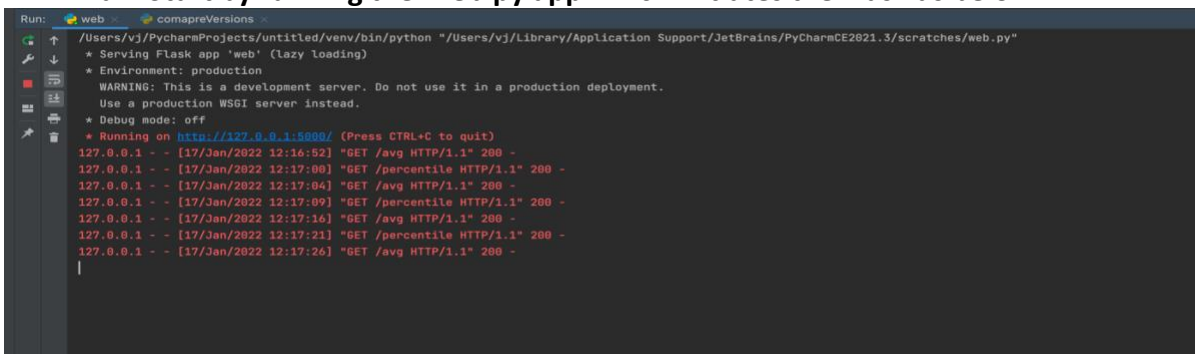
```
import statistics
import numpy as np

from flask import Flask
from flask import request
from heapq import nsmallest
from heapq import nlargest
```

1. Used heapq module to find the N minimum number of elements from the list and N maximum number of elements from the list
2. Used Numpy library to compute the qth percentile of the list elements
3. Used Statistics library to compute median of list elements

c. Testcases

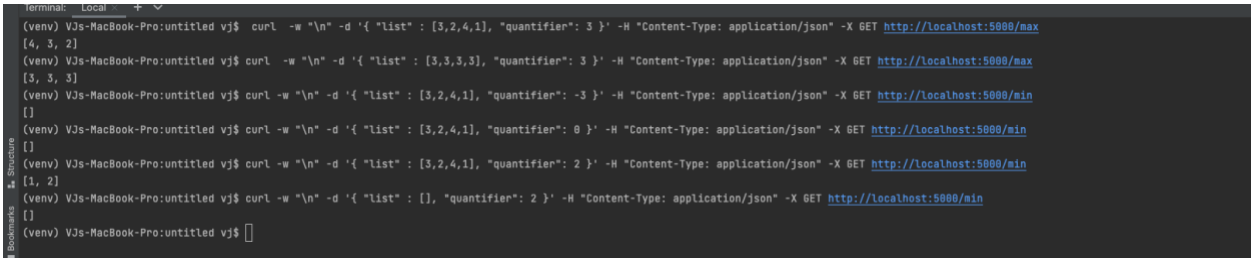
a. Start by running the Web.py app which initiates the Flask as below –



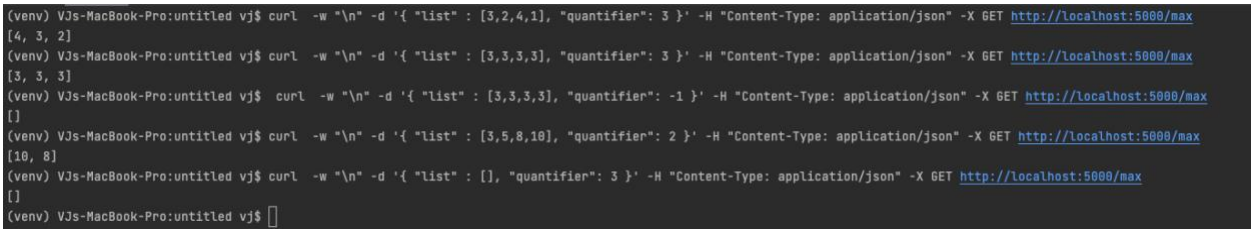
i. Testing using Curl

After Web.py file starts running – run the CURL commands to test and see the results of the Math Functions

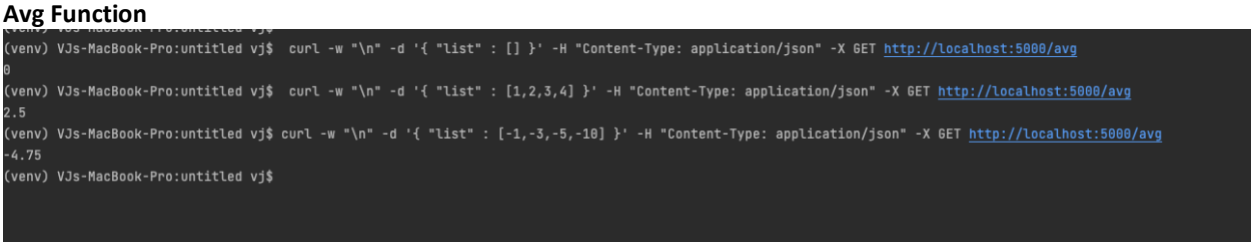
Min Function



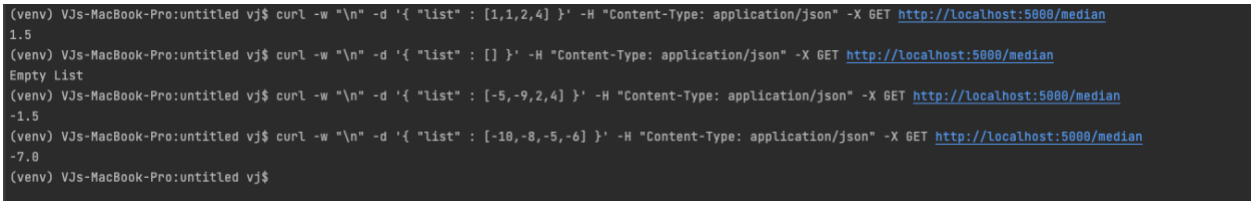
Max Function



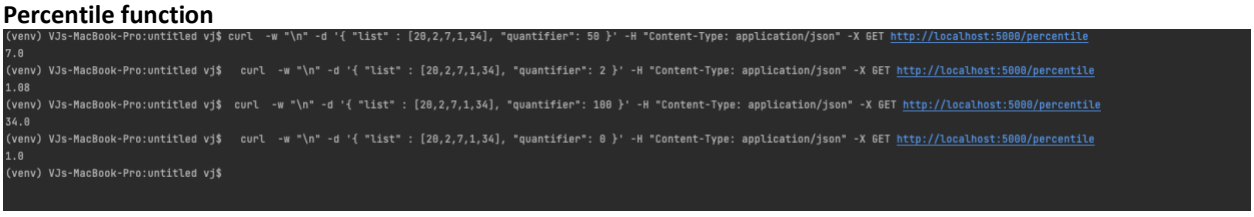
Avg Function



Median Function

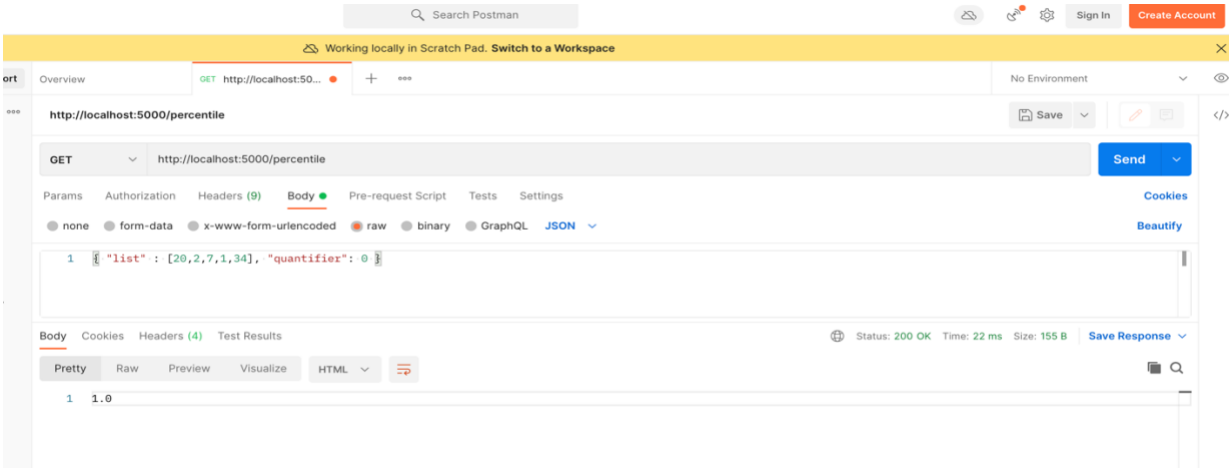


Percentile function

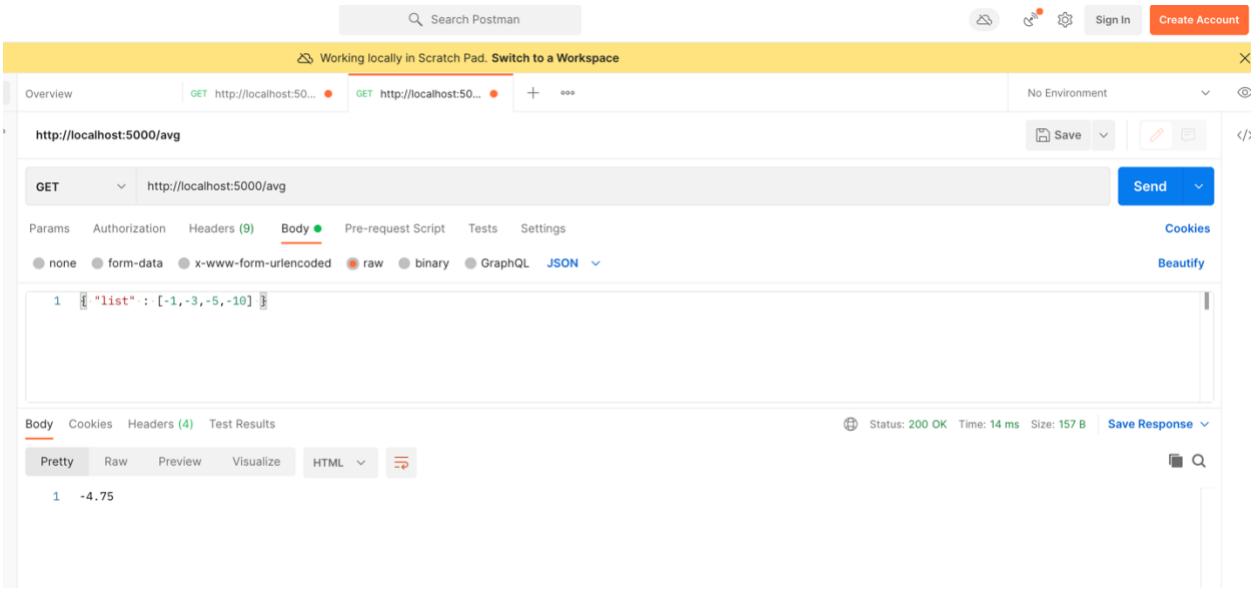


ii. Testing using Postman (three screenshots are attached)

Percentile Function with 0 quantifier



Avg function



Min function