**Modeling Amdahl’s Law : Project 1**

CST-305: Principles of Modeling and Simulation

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WF1100A Prof. Citro

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**Amdahl’s Law**

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Amdahl’s Law models the speedup or efficiency improvement of a task from a change in computer architecture or organization (Stallings, 2019).

In this equation, f can refer to the portion of a task that will be affected by the change and N refers to a speedup constant. Furthermore, it can refer to the portion of a processing unit’s instructions or tasks that can be parallelized or performed independently at the same time. N can refer to the number of processors in a processing unit. In modeling this, the maximum speedup possible from a given number of processors in a unit can be observed. Moreover, illustrating that processors have a diminishing impact on speedup.

*Issue Solved :A designer can use this model to see the benefit of a multiple processors for their system and to what extent it will be beneficial to parallelize their tasks and instructions.*

**Approach**

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*Mathematical:* To solve and represent this model, the model is set up with an initial value for parallelizable portion of a system and an initial value for number of processors. Then, the problem is evaluated for the speedup- the solution.

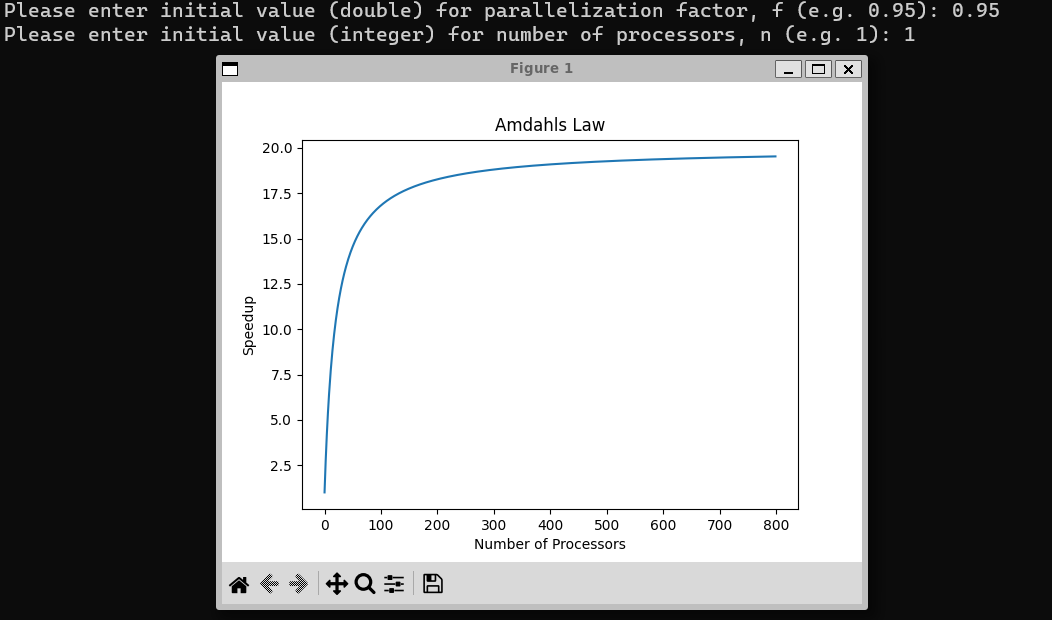
*Code:*

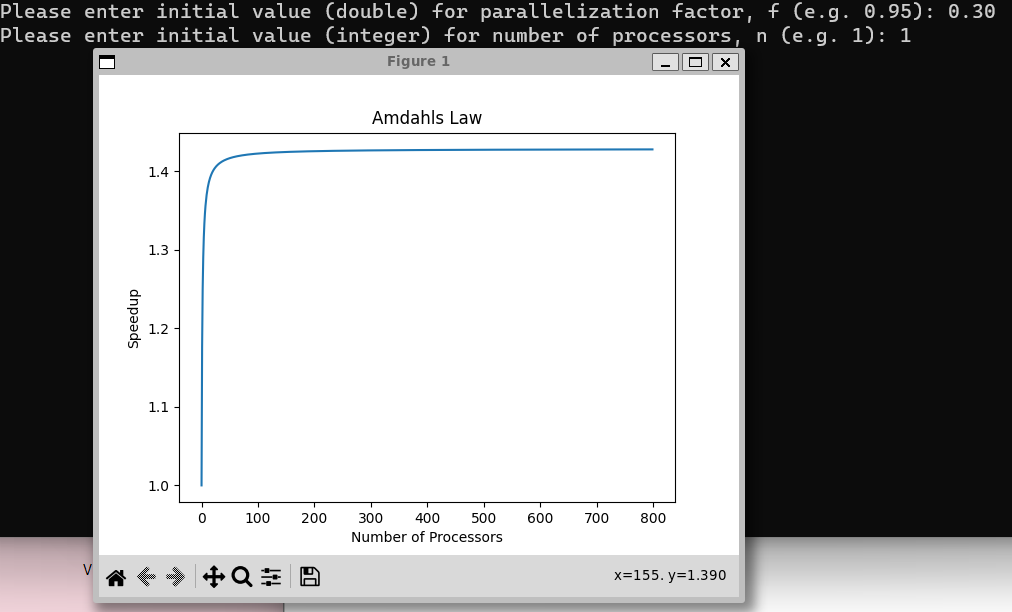
**Screenshots of Project.py**

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Program was written in python using notepad text editor and run in a Ubuntu wsl terminal.

1.

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2.

**Reference**

Stallings, W. (2019). Computer Organization and Architecture (11th ed.). Pearson: Hoboken, NJ. ISBN-13: 9780135205129