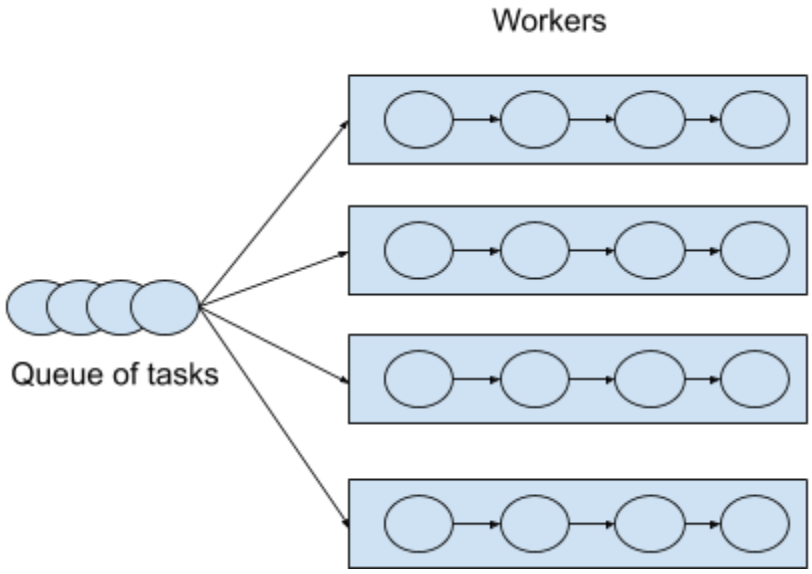
Assignment 4: Image filter

Student name: Pham Tran Huong Giang

Matricola: 606579

Implement

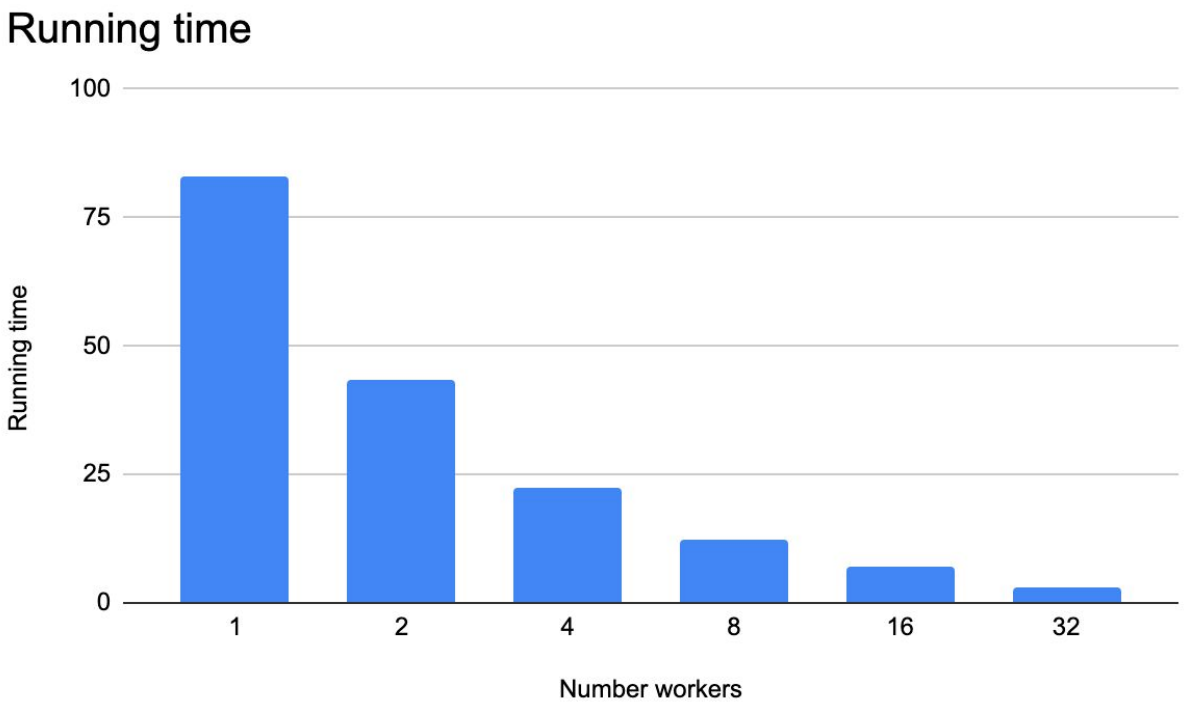
I use a farm with a number of workers (specified by input argument) to solve the problem.
Each worker does the task including reading the images, applying 2 filters respectively and writing the images to the destination folder.
I use a queue to store the task and then a thread pool with a fixed number of workers to take the task from the queue and perform it.
The flow with for workers is like below:



The reason I choose this model is because by applying the optimization rule with the initial model. Eliminate all the farms and pipelines and then put a farm on top.

Performance

To evaluate the performance I run the program with ten times of all the images inside the testing folder with different parallel degrees. With each parallel degree, I run the program 5 times to get the average running time. The performance is as figure below:


Running time
100
75
50
25
0
Running time
1
2
4
8
16
32
Number workers