

# MESTERSÉGES INTELLIGENCIA FÉLÉVES BEADANDÓ FELADAT

Flow-Shop ütemezés generikus algoritmus használatával

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Neptun-kód: WJFAOO

Programtervező informatikus

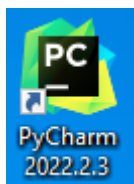
Miskolc

2022/11/31

## Választott nyelv:

A feladatom forráskódját a mesint\_beadando\_WJFAOO.py fájlban lehet megtalálni.

## Technológia:



## A feladat elkészítése során használt könyvtárak:

csv – a csv fájl beolvasásához szükséges könyvtár

random – random számok generálásához szükséges könyvtár

## Működéshez elengedhetetlen fájlok:

mesint\_beadando\_WJFAOO.py

base\_data.csv

A base\_data.csv fájlban található adatokkal működik a program. (Az első sort természetesen nem veszi figyelembe a program.)

## Magának a programnak a felépítése:

Machines	Iterations	Jobs	Generations	The seed of the generation
5,100,10,10,1				
5,100,20,10,1				
5,100,50,10,1				
5,100,100,10,1				
5,100,200,10,1				
10,100,10,10,1				
10,100,20,10,1				
10,100,50,10,1				
10,100,100,10,1				
10,100,200,10,1				
20,100,10,10,1				
20,100,20,10,1				
20,100,50,10,1				
20,100,100,10,1				
20,100,200,10,1				

A mesint\_beadando\_WJFAOO.py programot elláttam kommentekkel, így azt meg lehet ott tekinteni.

## Futási eredmények:

```

The genetic algorithm:
Best found solution: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 98, 20, 21, 22, 98, 24, 25, 26, 27, 38, 28, 29, 30, 31, 32, 83, 34, 35, 36, 37, 15, 39, 51, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 40, 66,
Time: 5604
The genetic algorithm:
Best found solution: [0, 26, 5, 11, 13, 14, 18, 20, 55, 15, 22, 24, 1, 27, 38, 195, 69, 179, 60, 199, 31, 32, 33, 103, 70, 35, 36, 37, 42, 39, 176, 190, 46, 41, 154, 43, 44, 45, 47, 144, 49, 145, 50, 51, 52, 148, 117, 74, 5
Time: 11086
The genetic algorithm:
Best found solution: [5, 1, 3, 8, 2, 4, 9, 0, 6, 7]
Time: 1187
The genetic algorithm:
Best found solution: [15, 3, 5, 8, 11, 17, 7, 16, 14, 12, 1, 9, 6, 18, 13, 4, 2, 19, 10, 0]
Time: 1048
The genetic algorithm:
Best found solution: [3, 5, 6, 11, 12, 0, 32, 46, 15, 14, 34, 4, 17, 35, 27, 9, 48, 44, 26, 2, 47, 31, 16, 23, 24, 8, 22, 7, 20, 43, 33, 25, 39, 30, 1, 29, 28, 37, 18, 36, 19, 41, 38, 45, 42, 49, 13, 21, 40, 10]
Time: 3263
The genetic algorithm:
Best found solution: [4, 3, 7, 13, 77, 6, 50, 12, 0, 8, 78, 92, 15, 18, 19, 21, 22, 23, 24, 98, 26, 49, 28, 29, 30, 54, 32, 78, 87, 80, 10, 35, 37, 82, 40, 93, 42, 25, 99, 83, 51, 38, 46, 14, 70, 36, 98, 47, 48, 27, 16, 74,
Time: 6228
The genetic algorithm:
Best found solution: [0, 1, 2, 4, 5, 185, 163, 10, 11, 12, 13, 14, 15, 16, 149, 173, 123, 21, 22, 186, 25, 26, 27, 28, 30, 31, 3, 32, 114, 37, 151, 33, 38, 131, 39, 101, 42, 43, 198, 45, 46, 47, 182, 49, 50, 51, 52, 138, 8,
Time: 11715
The genetic algorithm:
Best found solution: [5, 0, 1, 6, 4, 2, 8, 3, 9, 7]
Time: 1778
The genetic algorithm:
Best found solution: [0, 1, 3, 18, 5, 19, 6, 7, 12, 8, 14, 11, 2, 4, 15, 17, 9, 10, 13, 16]
Time: 2374
The genetic algorithm:
Best found solution: [32, 5, 6, 4, 47, 3, 11, 42, 12, 9, 34, 36, 15, 30, 19, 21, 17, 8, 20, 14, 37, 40, 22, 27, 24, 10, 13, 31, 0, 26, 23, 2, 7, 28, 29, 25, 16, 1, 35, 33, 38, 18, 39, 41, 43, 49, 45, 46, 48, 44]
Time: 4317
The genetic algorithm:
Best found solution: [0, 79, 4, 5, 75, 13, 82, 12, 57, 11, 3, 14, 1, 15, 18, 26, 60, 16, 19, 25, 21, 22, 23, 94, 8, 18, 49, 28, 29, 7, 30, 43, 56, 72, 52, 85, 35, 37, 36, 39, 91, 41, 31, 42, 98, 45, 89, 47, 71, 17, 50, 51,
Time: 7166
The genetic algorithm:
Best found solution: [0, 1, 32, 7, 8, 10, 11, 12, 13, 2, 14, 15, 16, 17, 18, 19, 21, 67, 25, 26, 169, 20, 89, 28, 29, 30, 31, 3, 33, 34, 35, 46, 37, 36, 38, 39, 40, 173, 42, 43, 44, 9, 24, 47, 48, 49, 111, 50, 51, 52, 54, 5
Time: 13098

Process finished with exit code 0
Aktiválja a Windowst
```

## Irodalomkutatás:

[What is flow shop scheduling vs job shop scheduling? \(just-plan-it.com\)](https://just-plan-it.com/)

[Simple Genetic Algorithm From Scratch in Python - MachineLearningMastery.com](https://MachineLearningMastery.com/)