

Implementacija A* algoritma

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Sadržaj

- A-Mazer
- A* algoritam
- Implementacija
- Statistika

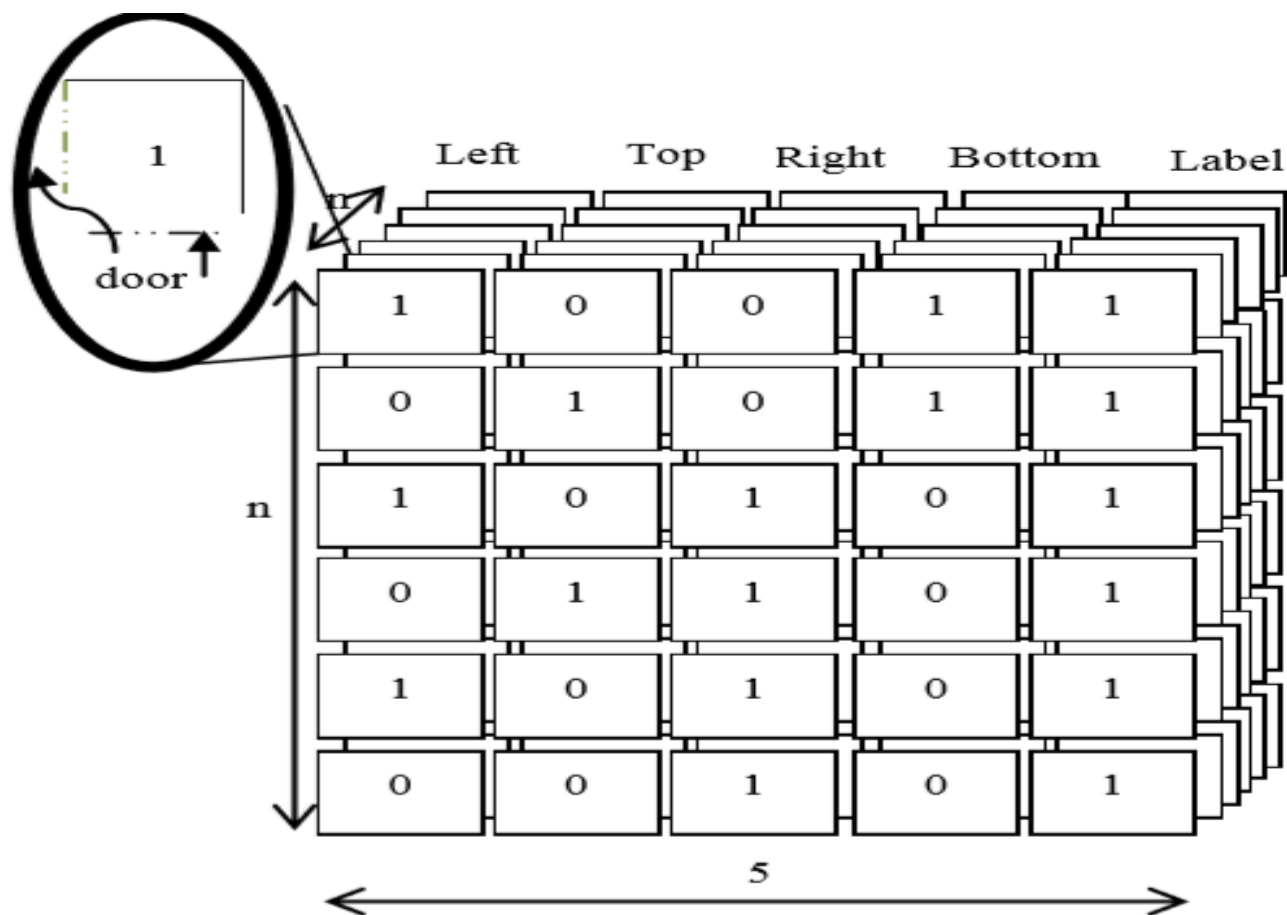
A-Mazer

- Metoda koja se koristi za izradu prohodnog pravokutnog labirinta

A-Mazer

- Izrada pravokutne mreže
- Označavanje i provjera prohodnosti
- Spajanje elemenata

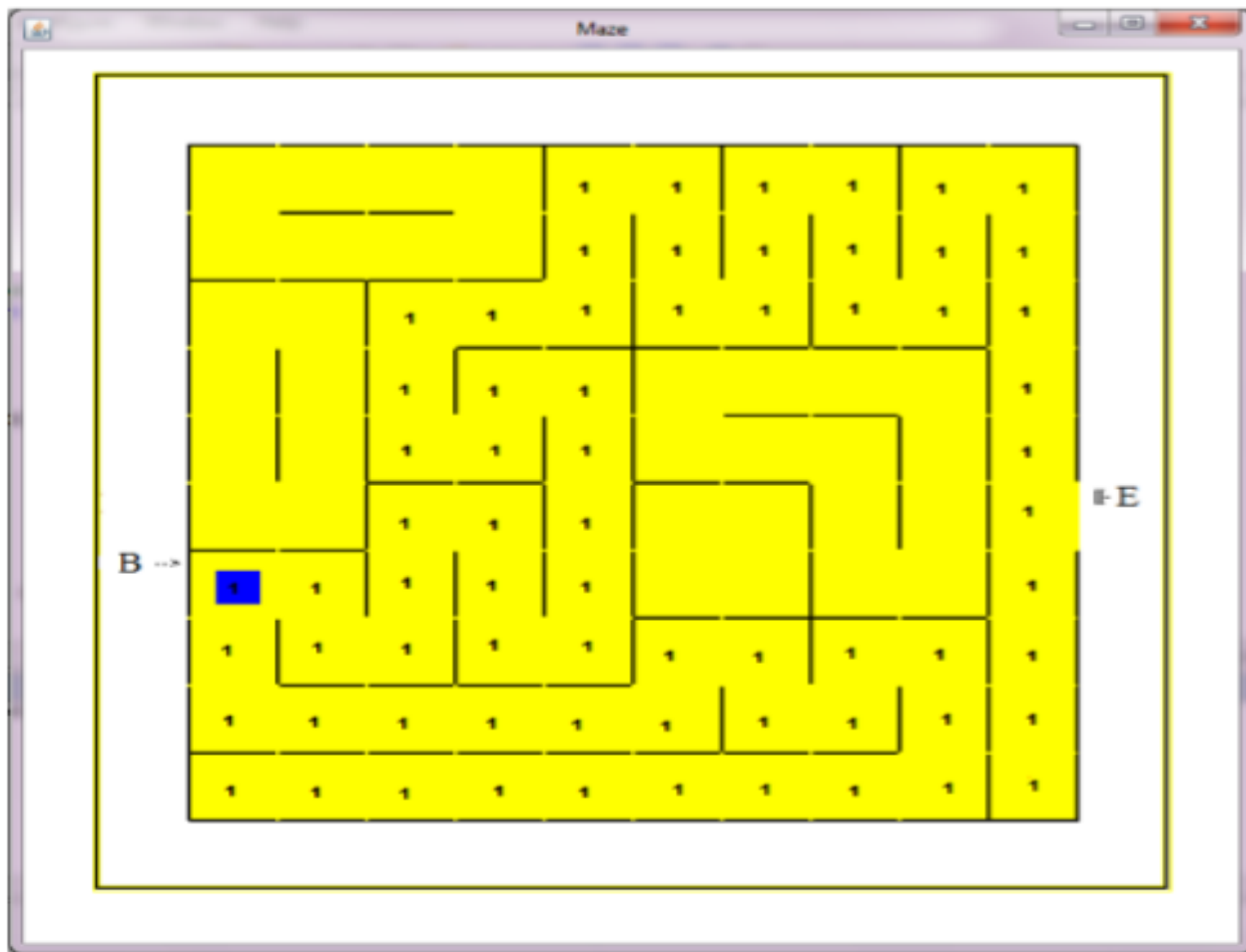
Izrada pravokutne mreže



Označavanje i prohodnost

- Početak i kraj : $(S, 0)$ i $(F, N-1)$
- Označavanje polja
- Provjera prohodnosti

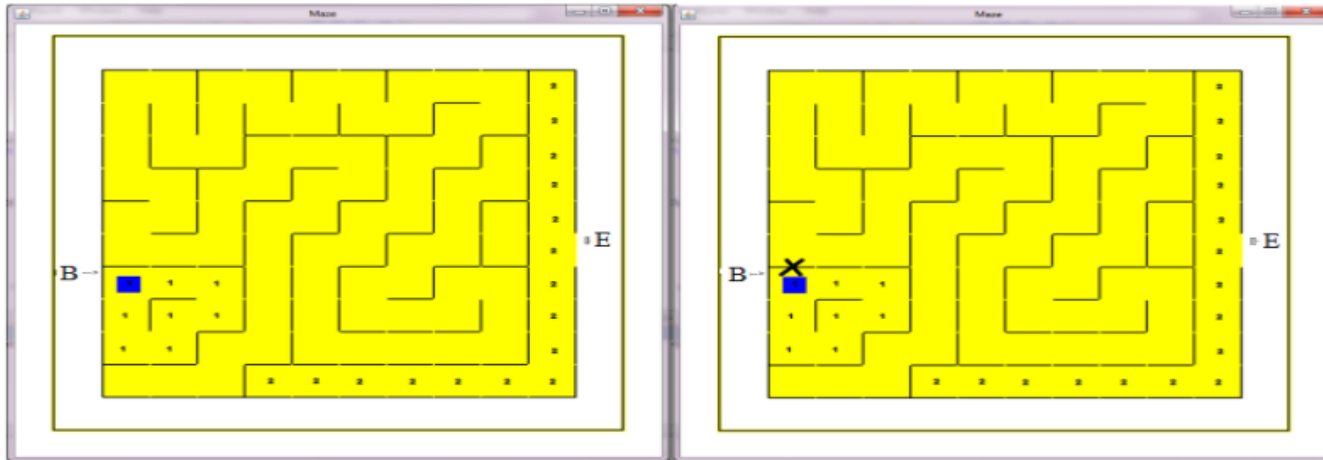
Prohodni labirint



Flood-fill algoritam

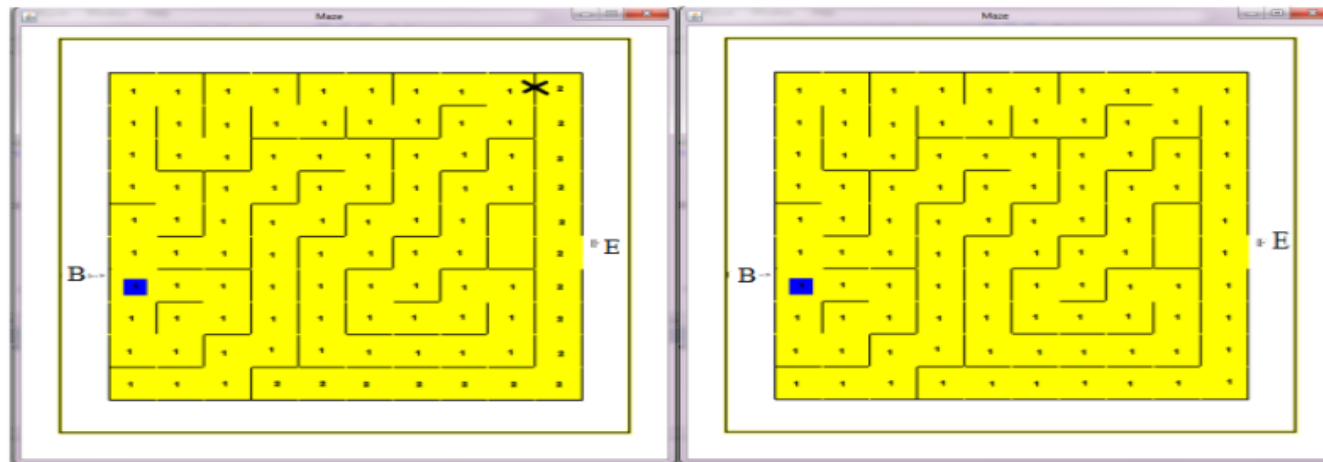
```
flood_fill(polje){  
    ako sam već bio na tom polju: povratak  
    ako je polje zid: povratak  
  
    označi polje kao posjećeno  
  
    rekurzivni poziv:  
        polje-lijevo, polje-desno  
        polje-gore, polje-dolje  
}
```


Neprohodni labirint



Step 1 & Step 2: Creation of Random Maze with Return(o) with Labeling

Step 3 : Merging of Cells by using Flood_Fill for Walls



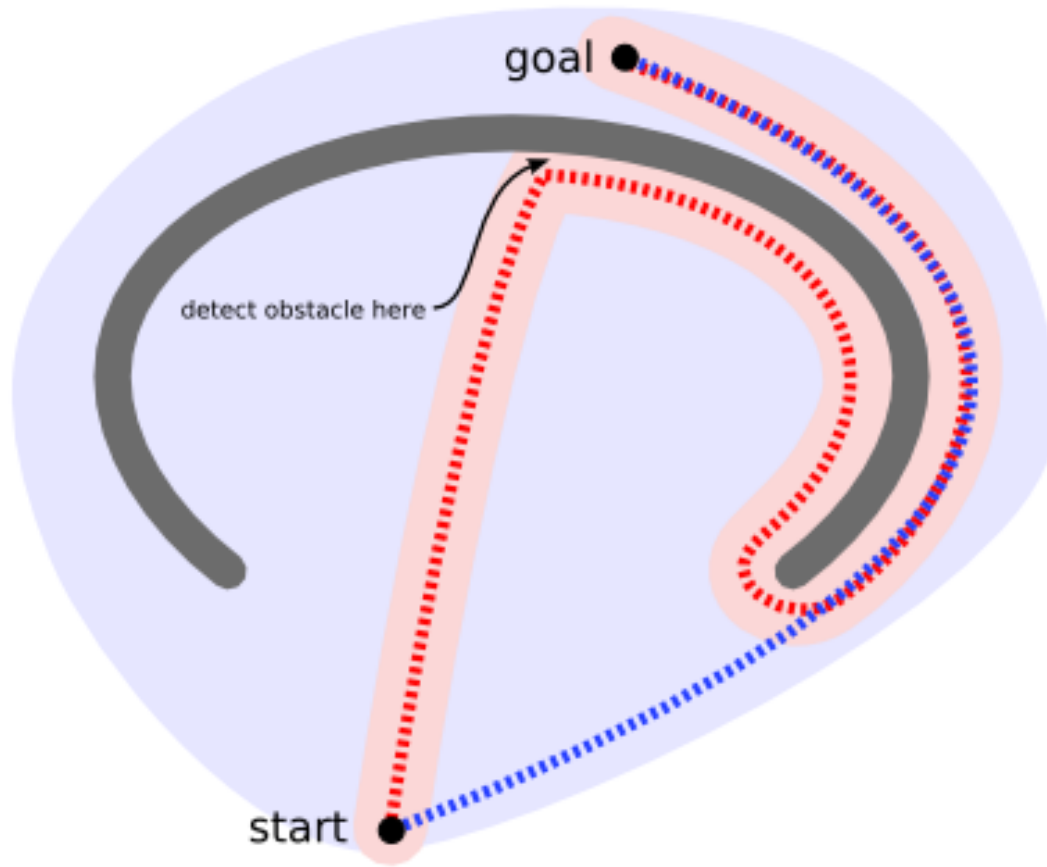
Step 3 : Merging of Cells by using Flood_Fill for Walls Continued ...

Algoritam A*

- Algoritam koji se koristi u teoriji grafova za pronalaženje najkraćeg puta između dva čvora

Algoritam A*

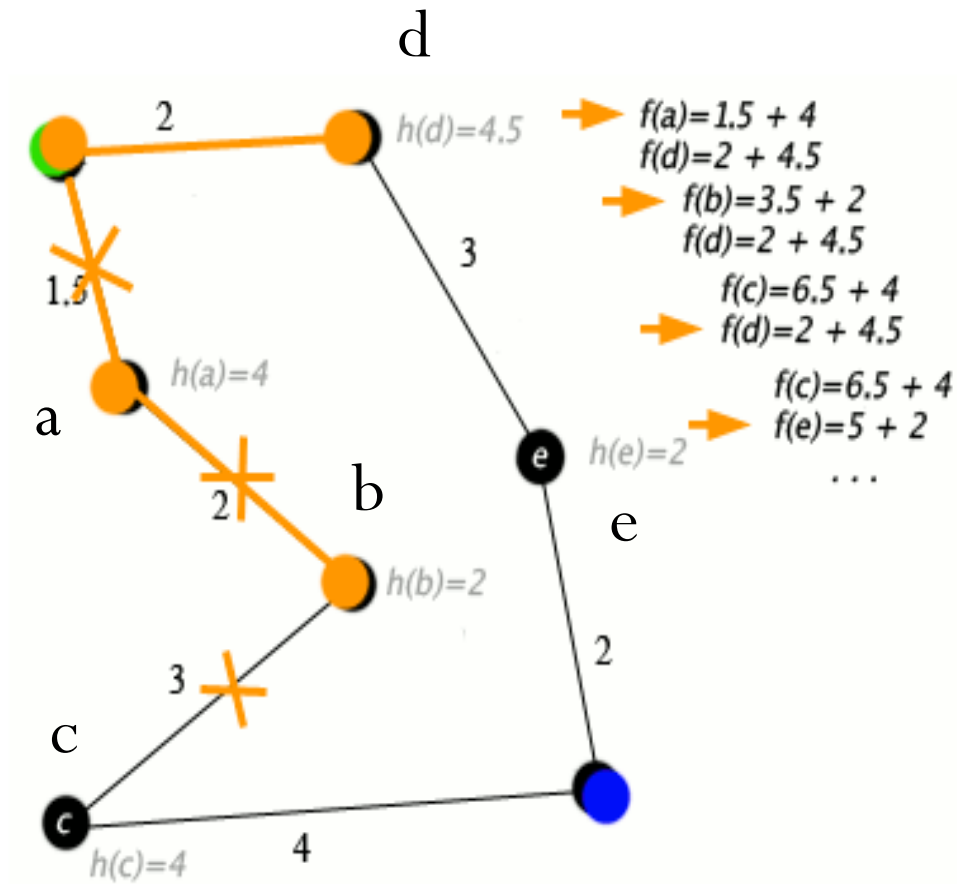
- Dijkstrin algoritam
- Heurističke metode



Vrijednost čvora $f(x)$

- $f(x) = g(x) + h(x)$
- $g(x)$ – prijeđeni put do trenutne pozicije
- $h(x)$ – vrijednost heurističke funkcije

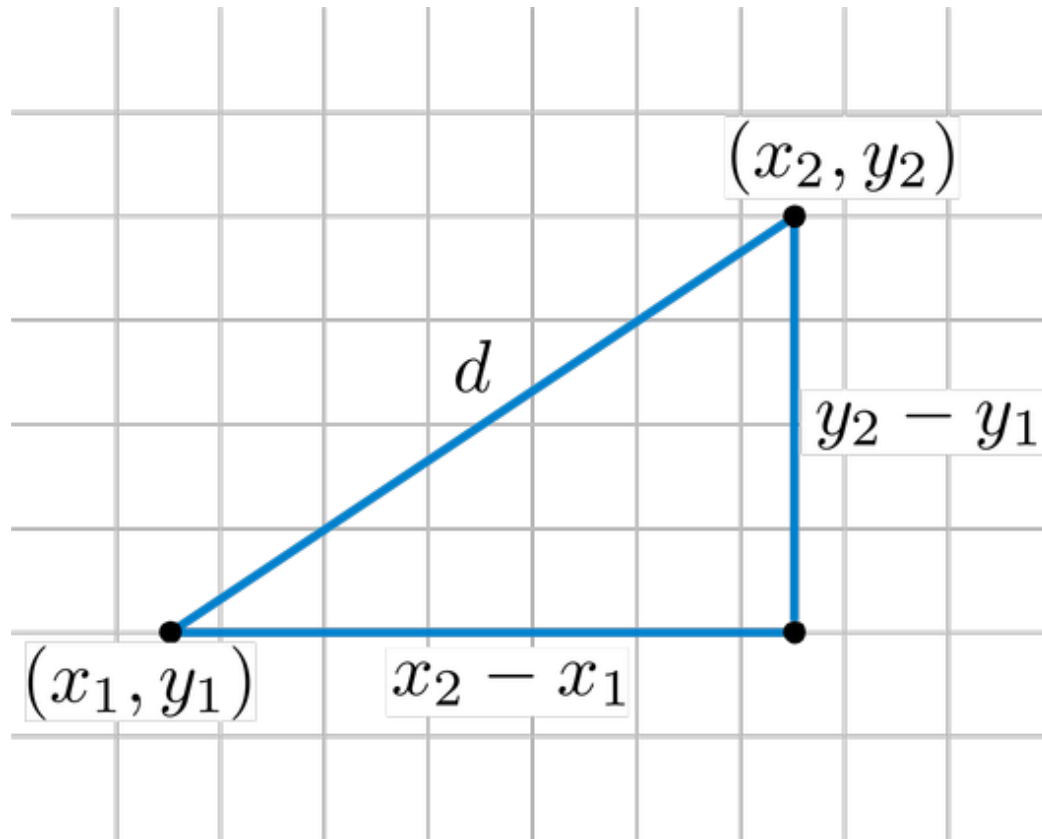
Primjer rada algoritma



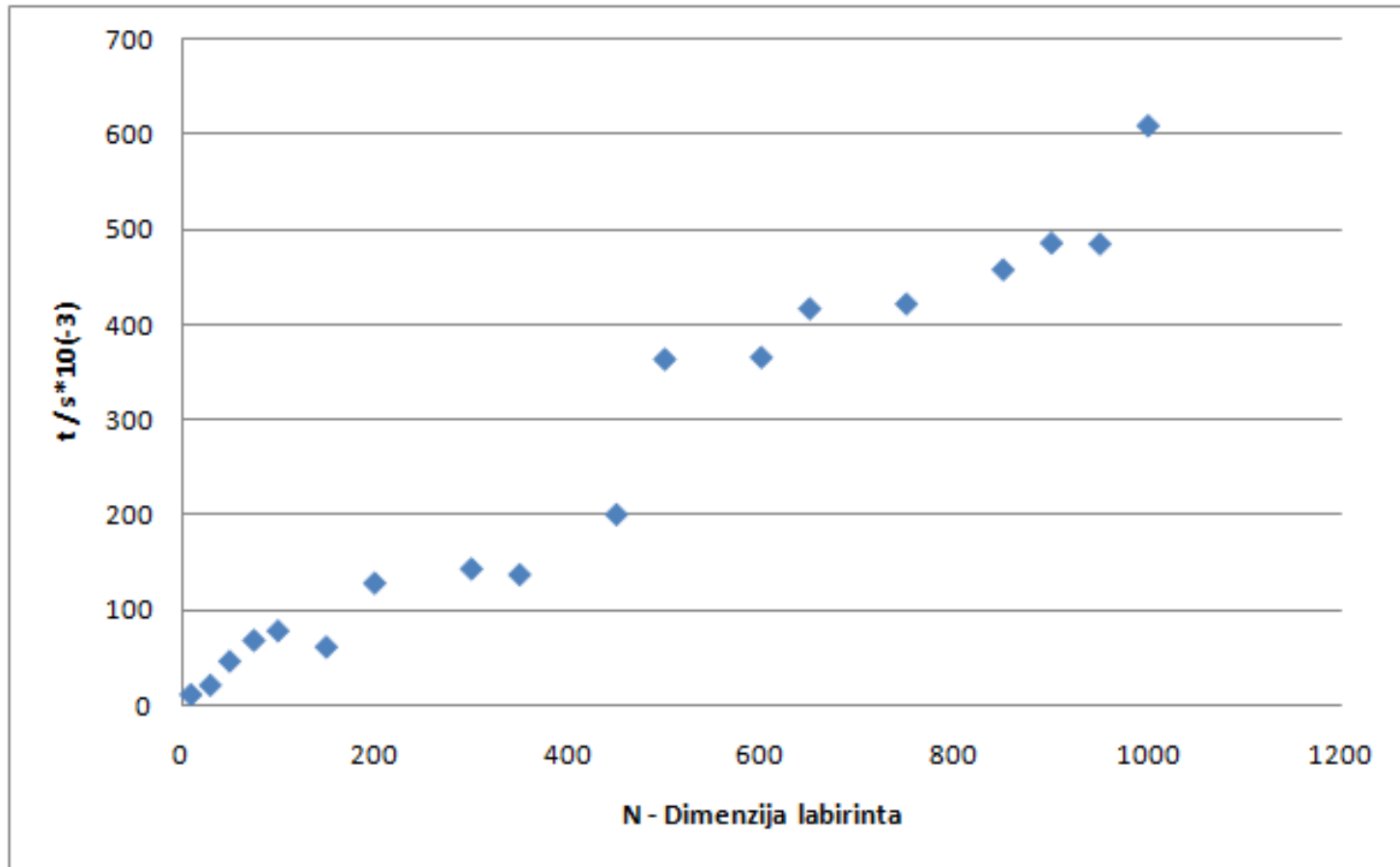
Heurističke funkcije za problem labirinta

- Egzaktna heuristika
- Udaljenost Manhattan

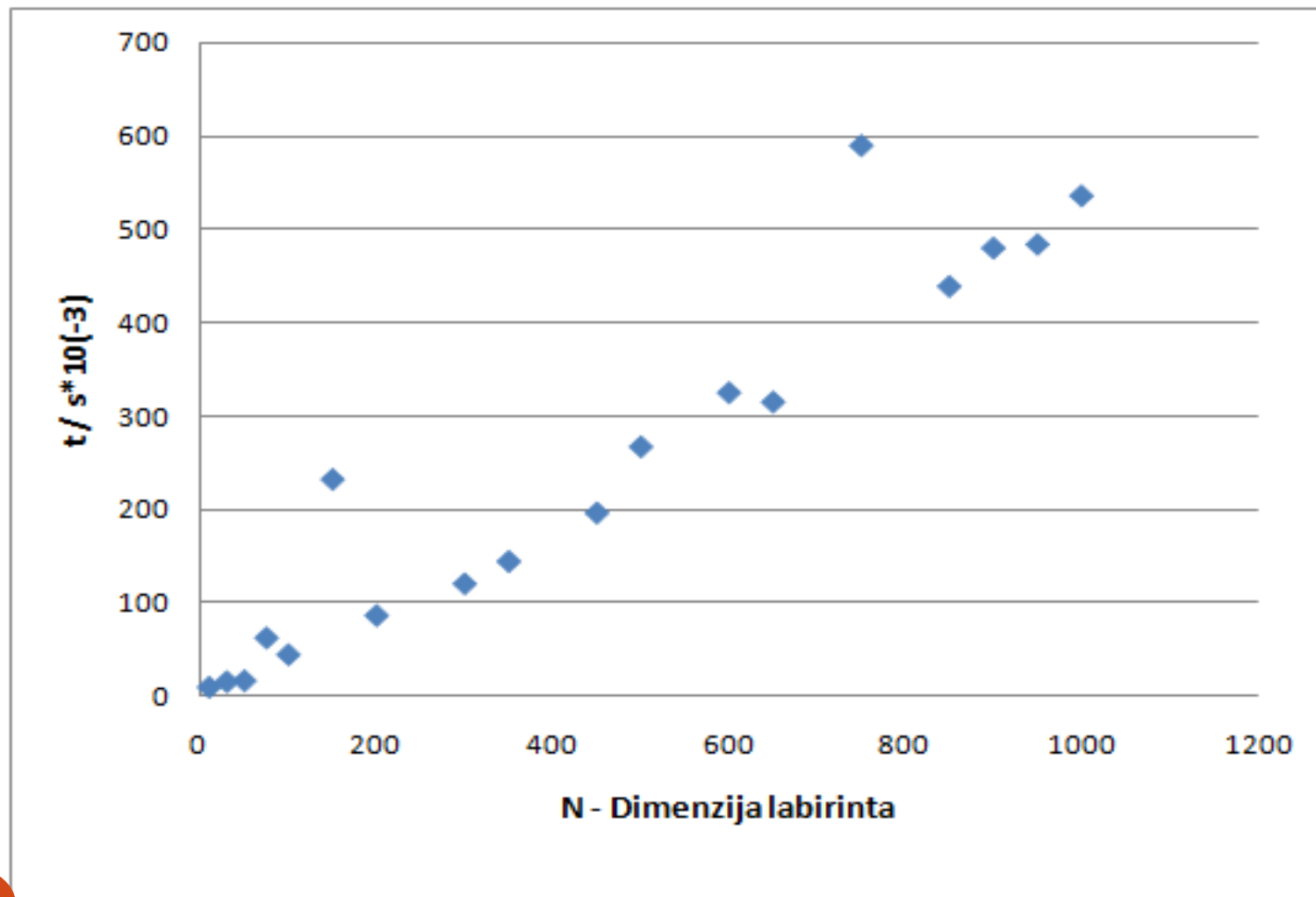
Egzaktna heuristika

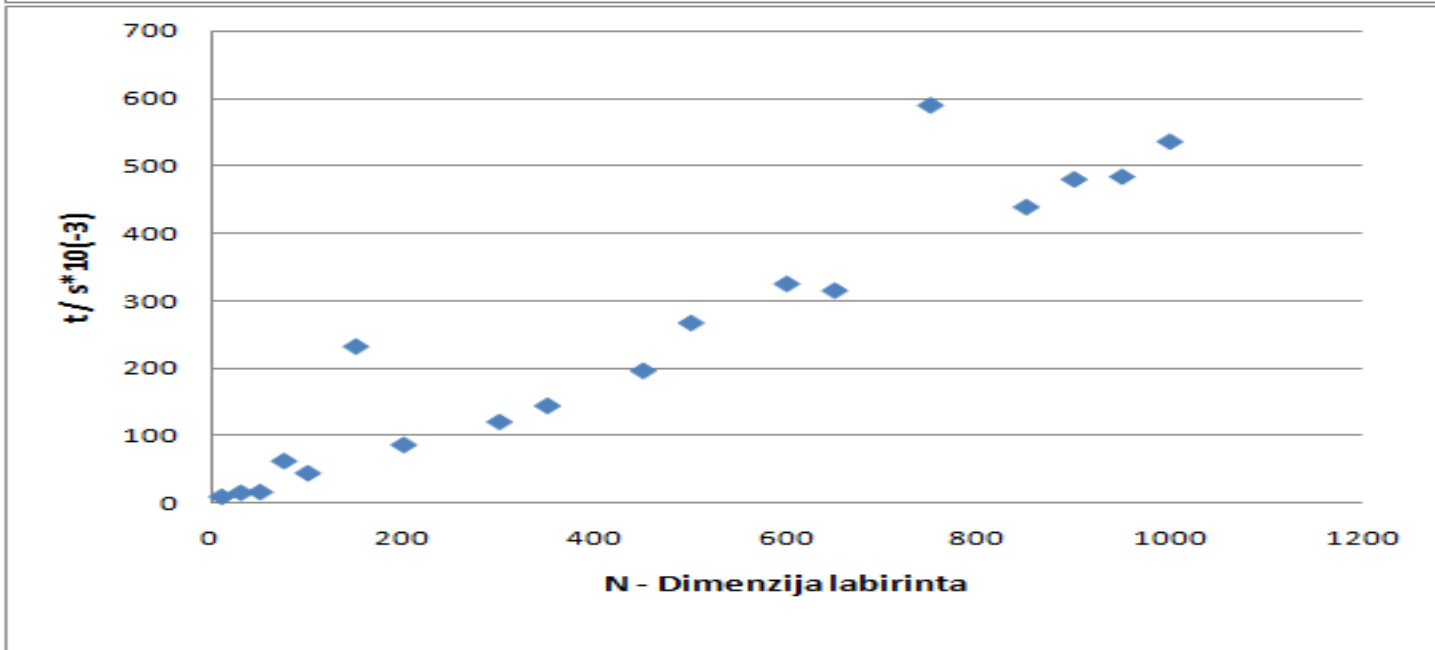
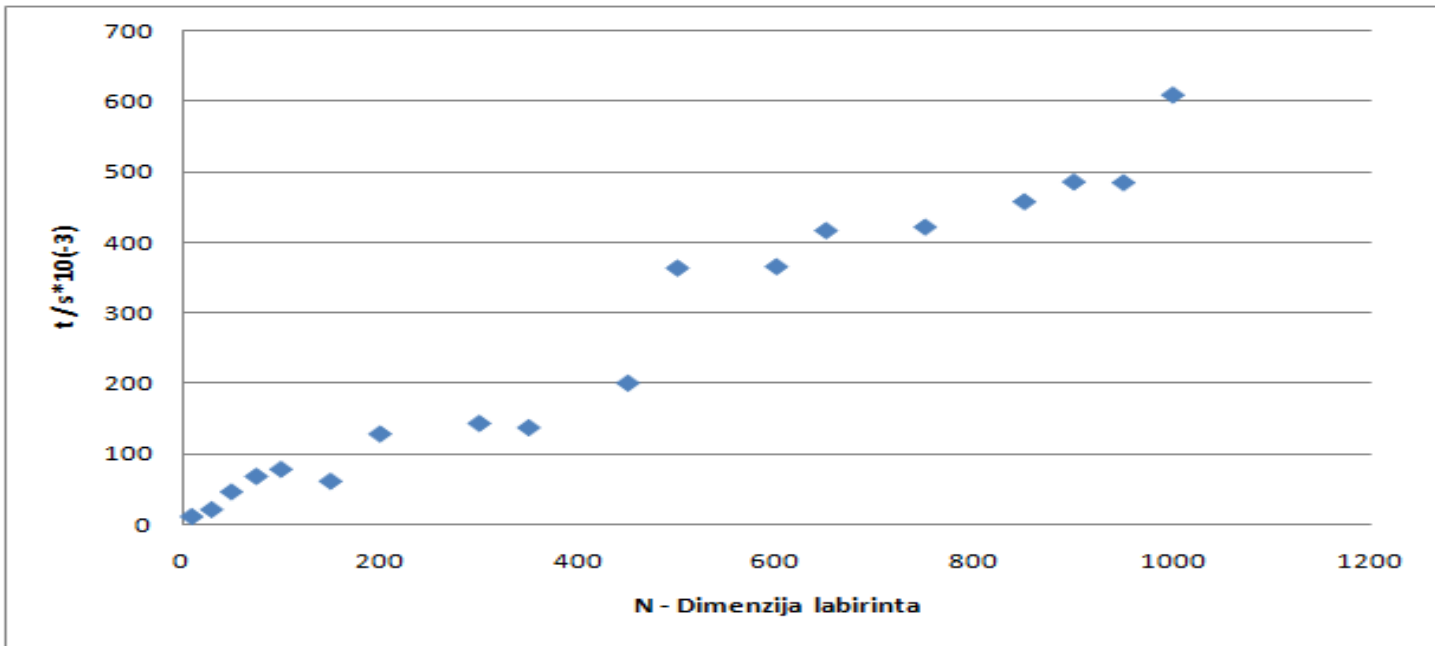


Egzaktna heuristika



Udaljenost Manhattan





Pitanja?

