

Last name

Name

ID

Generic Competence EDA

- *This exercise must be submitted via El Racó.*
 - *Write your full name and ID.*
 - *Write your answers within the reserved space.*
 - *When giving a reference to a source (book, journal, website, etc.), follow the style "ISO-690 (author-date, English)". You can generate references in this format at:*
www.citethisforme.com/guides/iso690-author-date-en
 - *When giving an URL, please write **clearly** and use, for example:*
<https://shorturl.at>
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(a) Explain which problem is solved with Floyd-Warshall's algorithm.

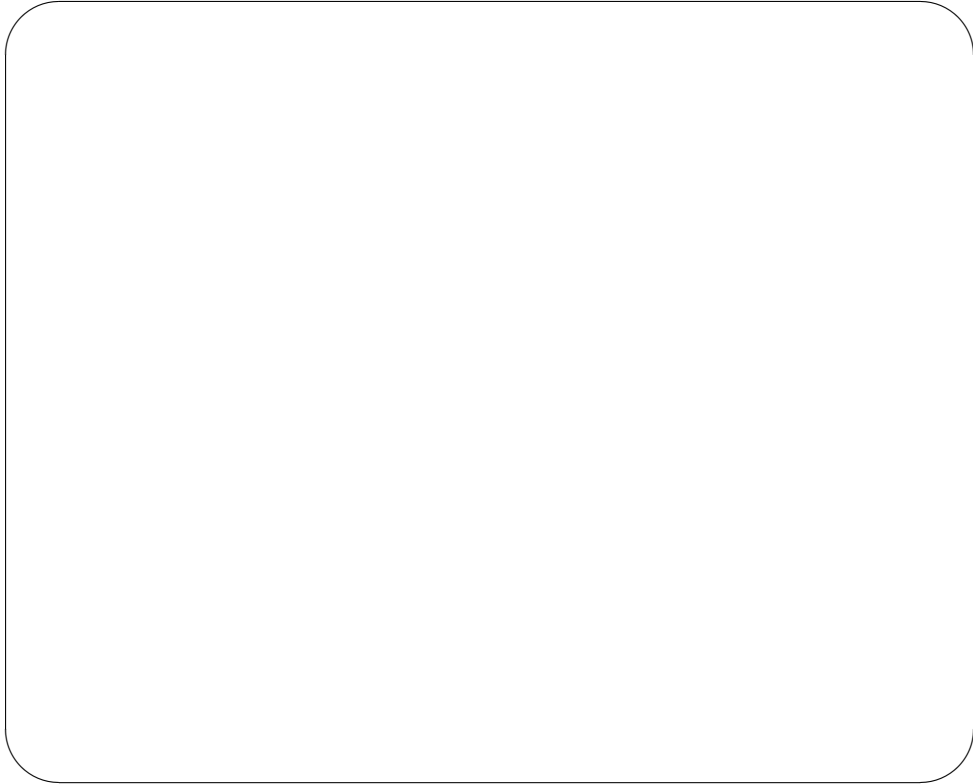
(b) Which is its asymptotic cost in time and space in the worst case?

(c) Let INF be an integer constant with a large enough value. The *weight matrix* M of a weighted directed graph $G = (\{0, \dots, n-1\}, E)$ is the matrix $n \times n$ defined as: M_{uv} is the weight of the edge (u, v) if $(u, v) \in E$, and INF otherwise.

Implement in C++ a function

```
vector<vector<int>>> floyd_warshall(const vector<vector<int>>& M);
```

which, given the weight matrix of a weighted directed graph, returns the matrix obtained after applying Floyd-Warshall's algorithm.



(d) Cite the sources you have used to answer the previous questions.

