POVZETEK:

V diplomski nalogi smo predstavili uporabo linearne algebre v geografiji.

Geografski problem se začne z mrežo povezav - z zemljevidom pomembnih geografskih območij (na primer urbanih središč), povezanih s transportnimi potmi. Take povezave lahko predstavimo z grafom, kjer so urbana središča vozlišča tega grafa, transportne linije pa so povezave, ki povezujejo po dve vozlišči.

V nalogi je predstavljena rešitev Petra Goulda za razvoj primernega indeksa dostopnosti, ki temelji na glavni lastni vrednosti in pripadajočem lastnem vektorju matrike sosednosti grafa nekega transportnega omrežja.

Diplomska naloga je razdeljena na dva dela. V prvem delu so definicije iz teorije grafov in linearne algebre, ki jih skozi nalogo potrebujemo kot orodje za izračun indeksa dostopnosti. V drugem delu pa je opisan postopek izračuna indeksa dostopnosti in nekaj preprostih primerov izračuna Gouldovega indeksa.

ABSTRACT:

The work presents the use of some tools from linear algebra in geography.

The geographical problem starts with a transportation network - a map of geographically significant entities (for instance urban centers) connected by transportation routes. We can present connections like this with a graph in which the urban centers are vertices and the transportation routes are edges joining pairs of vertices.

We present a solution of developing a suitable index of accessibility that was proposed by Peter Gould. The solution is based on a principal eigenvalue and the corresponding eigenvector of the adjacency matrix of some transportation network.

The work is divided into two parts. The first part contains definitions, from graph theory and linear algebra, that we need as a tool for calculating the index of accessibility. The second part describes the procedure for calculating the index of accessibility and a few simple examples of calculating the Gould's index.

Literatura

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