

Povzetek

Diplomska naloga obravnava problem upravljanja projektov. Projekt sestavlja množica opravil, na kateri je dana relacija delne urejenosti. Za vsako opravilo poznamo tudi njegovo trajanje. Zanima nas najkrajši čas, ki je potreben za izvedbo celotnega projekta.

Najprej opišemo projekt in njegovo predstavitev s projektnim omrežjem. V nadaljevanju opišemo metodo kritične poti, ki učinkovito poišče kritično pot v projektnem omrežju. Z metodo dobimo še dodatne informacije, s pomočjo katerih lahko sestavimo načrt za izvedbo projekta v najkrajšem možnem času. Nato predstavimo metodo PERT, ki se uporablja, ko natančno trajanje opravil ni znano. Z metodo PERT ocenimo pričakovano trajanje projekta in verjetnost, da končamo projekt v danem roku. Na koncu predstavimo uporabo simulacije pri določanju verjetnosti za zaključek projekta v roku. Teoretične izračune tudi primerjamo z rezultati, pridobljenimi s simulacijo.

Abstract

In this thesis, the project management problem is discussed. Each project consists of a partially ordered set of tasks. For each task also its duration is given. The problem is to find the shortest time in which the project can be completed.

We first describe a project and different ways to represent it. Then we describe the critical path method, which effectively finds a critical path in a given project network. This method also gives some additional information that can be used to compute the earliest and latest possible starting times for each activity which are consistent with completing the project in the shortest possible time. Next we present the PERT method, which is used when the exact duration of tasks is not known in advance. Using the PERT method, we estimate expected duration of a project and the probability of completing the project in a given time. Finally, we present a simulation used to determine the probability of completing a project within a deadline. We also compare theoretical calculations with results obtained with the simulation.

Math. Subj. Class. (2010): 90B10, 90B15, 90C05, 05C85, 68W99.

Ključne besede: projekt, projektno omrežje, metoda kritične poti, PERT, simulacija

Keywords: project, project network, critical path method, PERT, simulation

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