Chapter 7 Section 3 MA1020 Quantitative Literacy

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Decreasing-time Scheduling Algorithm

What?

Why?

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A Better Approach

Paths

Critical Paths

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Critical-path Priority Lists Algorithm

- List in a table all the maximal paths and isolated vertices of the weighted order-requirement digraph.
- 2 Find the greatest of all the weights of paths and isolated vertices in the table.
 - 1 If the greatest weight is the weight of a maximal path (so it is a critical path), the task at the head of that path goes next in the priority list.
 - 2 If the greatest weight is the weight of an isolated vertex, that task goes next in the priority list.

If there is more than one choice in step 2, one task may be chosen at random.

Remove the task selected in step 2 and all attached edges from the weighted order-requirement digraph. Using the new digraph, form a new table listing all maximal paths and isolated vertices. Return to step 2.

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Example

Task Number	Task
T_1	Chop the vegetables-red bell peppers and onions.
T_2	In a very hot cast-iron pan, make enough roux for
	both dishes.
T_3	Add crab meat to half of roux/vegetable mixture and
	simmer. (The roux mixture is divided in half and the
	halves set aside in T_5 below.)
T_4	Bake half of crab/vegetable mixture in a pie shell.
T_5	Remove roux from heat, add vegetables, and allow
	them to cook. Divide this roux/vegetable mixture in
	half and set aside the halves.
T_6	Peel shrimp.
T_7	Add shrimp to half of roux/vegetable mixture, and
	simmer.
T ₈	Combine shrimp mixture and half of crab mixture.
Ŭ	Simmer.
T_9	Make omelets. Top with crab and shrimp mixture.

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The Critical-Path Scheduling Algorithm

- Determine the critical-path priority list from the weighted order-requirement digraph for the project.
- 2 Apply the list-processing scheduling algorithm, using the critical-path priority list from step 1.

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