

Family name:..... Given name:.....

- 1) (30%) Name the two factors that make impossible having linear scalability according to the Universal Scalability Law.

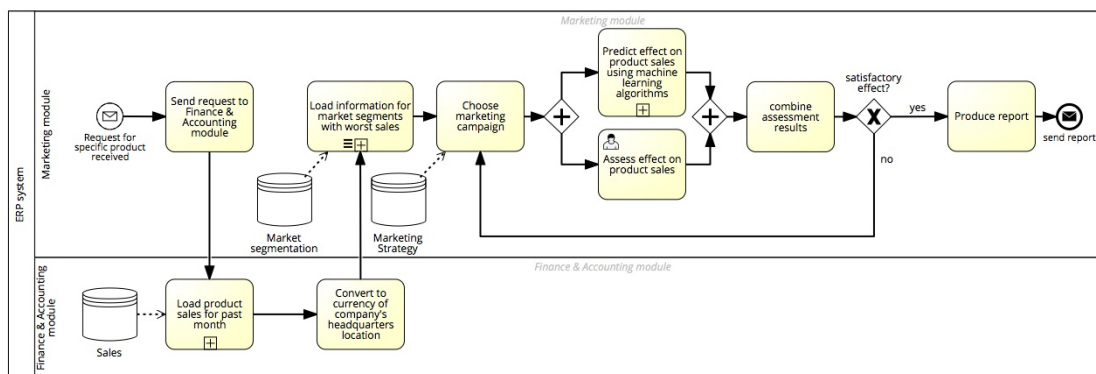
1:

2:

- 2) (30%) Which is the main difference between the hash functions used in the linear hash and consistent hash algorithms?

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- 3) In the diagram below, “Convert to currency of company’s headquarters location” is a business value adding (BVA) task; “Send request to Finance & Accounting module” is a non-value adding (NVA) task; and all the other tasks are value adding.



- a. (20%) Considering that each task takes one second, collapsed sub-processes 10 seconds, manual tasks 1 minute and all the branches in a choice have the same probability, give the cycle time efficiency of the flow.

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- b. (20%) Can we replace the two lanes of the diagram with two pools, if all the other elements of the diagram remain exactly the same? Briefly explain why.

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