Second-Milestone of term project, Software Engineering (CS2310)

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Project Title:
“A conceptual study of Product & Service Customization System on mobile platform”.

Second milestone accomplishment:
Precise mathematical definitions of specification is needed when implementing I-card/C-card concepts in Slow Intelligence Systems. In general, transitions in SIS run through a pathway that starts from a specific problem and finishes when a solution occurs:


In this case, a product/service customization system (PSCS) can then be specified given mathematical representations that describes components and operations from initial problem to final solution. The initial problem in a PSCS is to provide a best service which matches the most number of needs from a customer. A solution therefore is the best service from available resources. Mathematical representations of problem and solution are as following:

Problem: Product service that optimally satisfies a customer’s need under given resources.

Enumerator: enumerates the possible features that are expected to be preferred by potential customers. It generates a set of attributes when each tuple represents a specific product.

\[ \text{expected\_feature} = \{ef_1, ef_2, \ldots, ef_i\} \]

Super-component: processes the needs from customers. It contains a variety of attributes that partially agree with attributes from enumerator. As a result, multiple transitions are possible in matching them.

\[ \text{customer\_need} = \{cn_1, cn_2, \ldots, cn_j\} \]

Tester: a tester is need for multiple decision circles such that timing can be controlled.

Eliminator: transitions from enumerator to super-component can therefore generate a maximum of \( n = i \times j \) attributes, as shown in eliminator.

\[ \text{product\_candidate} = \{pc_1, pc_2, \ldots, pc_m \mid m < n\} \]

Concentrator: the resulting attributes in \( \text{product\_candidate} \) are then further concentrated in a concentrator. A concentrated selection algorithm is applied here to merge similar attributes accommodating customers’ need as according to available resources.

\[ \text{concentrated\_result} = \{cr_1, cr_2, \ldots, cr_x\} \]

Solution: service that contains the largest number of matching attributes between products and customer needs.

\[ \text{solution} = \{s_1, s_2, \ldots, s_y\} \].