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RAPAS DHAMVANIJ: A GRAPHICAL USER INTERFACE - BASED
SOFTWARE COST ESTIMATION MODEL. THESIS ADVISORS: SUCHAI
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In this research, a new cost estimation model for software projects is proposed. This model is based on the number of graphical user interfaces as the mean to represent the size of a software project. Compared to the past models, most of which are either based on the Kilo of Delivered Source Instruction (KDSI) or Function Points, the new model is more realistic for modern visual programming development. This is so because the use of the number of graphical user interfaces (U) conforms with the practices of modern software development with visual tools in which interface and report objects have been used informally as units for estimating the size of a piece of software.

From the data collected from thirty distinct software projects, several graphs were scatter-plotted. The main result was the effort (E) equation, which is given as $E \cong U/6$. The equation implies that in one man-month, a software developing organization can produce approximately 6 graphical user interfaces (GUIs) including all concerned activities. Another result was the productivity result. The productivity factor was studied via Simmon's Communication Model, and it was found that a medium-skilled programmer would be able to produce fifteen graphical user interfaces per month. Also, the result shows that, the GUI-KDSI equivalence gives approximately 32 statements per one graphical user interface. When the results of U are related to the number of input/output fields, the number of buttons, the number of input screens, and the number of query screens, all the graphs are linearly fitted with correlation factors ranging from approximately 85 to 92 percent.