Rubric

Senior Project

Assessment of Student Outcomes of the BS in Computer Science
of the
School of Computing and Information Sciences
Florida International University

The School of Computing and Information Sciences evaluates the Senior Projects of its graduating seniors for the purpose of assessing the level of attainment of the Student Outcomes of the BS in Computer Science program.

Your responses to this survey will be used solely for the purpose of assessing the Student Outcomes of the BS in Computer Science program of the School of Computing and Information Sciences at FIU. This survey is expressly NOT for assessment of student performance in the SCIS Senior Project course for assignment of letter grade, nor for assessment of the instructor(s).

Rating Instructions
For each program outcome, you are provided with a check-list of 7 or more criteria that evidence attainment of that outcome. Please check all criteria that are presented in this project. You may include additional criteria that are not explicitly listed; if so, please record the additional criteria in the spaces provided. Unless noted otherwise, the number of checked criteria, up to a maximum of 5, should be recorded as your rating of attainment of that outcome evidenced in the project.

Project Title _____ Performance Test Tool (Team 1)_____

Semester & Year ___Fall 2010_____

Moderator (Faculty / Industry Sponsor): _____Peter J. Clarke / Joseph Cutrono (Ultimate Software)

Evaluators: _Peter J. Clarke_____

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Student Outcome *(a)*: *Demonstrate proficiency in the foundation areas of Computer Science including mathematics, discrete structures, logic and the theory of algorithms*

_____ Project incorporates elements of mathematical reasoning or proof

_____ Project utilizes elements of set theory, Boolean algebras

__X_ Project utilizes statistical procedures to summarize test data

__X_ Project utilizes statistical measures of system behavior or performance

__X_ Project design utilizes finite state machines or automata to model system behavior

_____ Project utilizes some graph theoretic knowledge

_____ Project utilizes some techniques of numerical analysis

_____ OTHER: _____

_____ OTHER: _____

Student Outcome (b): *Demonstrate proficiency in various areas of Computer Science including data structures and algorithms, concepts of programming languages and computer systems.*

Data Structures & Algorithms

_X__   Project utilizes an advanced data structure, e.g. balanced search tree, hash table

___   Project utilizes some graph algorithm, e.g. shortest path, minimum spanning tree

____   Project documents runtime analysis of selected algorithms

Concepts of Programming Languages

____   Project utilizes some functional programming language (e.g., ML, Lisp)

____   Project utilizes aspects of context-free grammars

____   Project demonstrates familiarity with design issues such as scoping rules or dynamic type checking

Computer Systems (Database)

____   Project utilizes an appropriately selected database system

____   Project design utilizes conceptual and/or relational schema

____   Project demonstrates understanding of physical database design

Computer Systems (OS)

____   Project implementation utilizes knowledge of memory management

_X__   Project implementation utilizes knowledge of process synchronization

____   Project documents analysis of tradeoffs in selection of system characteristics

____   OTHER: _____

____   OTHER: _____

Student Outcome *(c)*: *Demonstrate proficiency in problem solving and application of software engineering techniques.*

_X__   Project demonstrates knowledge of the Software Development Life Cycle

_X__   Project deliverables include Project Specification

__X_   Project deliverables include Feasibility Study and/or Project Plan

_X__   Project deliverables include Requirements Documentation

_X__   Project deliverables include Design Documentation

_X__   Project documents testing and/or evaluation of the implementation

_X__   Project incorporates system walkthroughs

____   OTHER: _____

____   OTHER: _____

Student Outcome (d): *Demonstrate mastery of at least one modern programming language and proficiency in at least one other.*

_X__   Project is implemented using an appropriate high level language

_X__   Project implementation is reasonably efficient rather than "brute force"

_X__   Project implementation is modular and/or re-usable

_X__   Project implementation uses a modern API or Tool-Kit

____   Project implementation utilizes recursion

_X__   Project implementation utilizes some advanced features, e.g. polymorphism

____   A project sub-system or module utilizes an appropriate programming language other than the primary implementation language, e.g. SQL, ML, assembly language

____   OTHER: _____

____   OTHER: _____

Student Outcome *(e)*: *Demonstrate understanding of the social and ethical concerns of the practicing computer scientist*

__X_ Project documents sources and references

____ Project identifies and addresses any relevant social issues

__X__ Project identifies and addresses any relevant ethical issues

_X__ Project identifies and addresses relevant legal issues

____ Project identifies and addresses any relevant privacy issues

_X__ Project documents anticipated impact on users/clients

____ Project documents and addresses any anticipated technology impact issues

____ OTHER: _____

____ OTHER: _____

Student Outcome (f): *Demonstrate the ability to work cooperatively in teams*

__X_   Project completion evidences equitable participation by team members

__X_   Project presentation(s) included all team members

_X__   Project team activity is documented

_X__   Project team set out and followed a schedule for timely completion

____   Project team negotiated consensus when needed

_X__   Team members roles were clearly defined and executed

_X__   Team members shared responsibility for success and failure

____   OTHER: _____

____   OTHER: _____

Program Outcome (g): *Demonstrate effective communication skills*

_X__   Presentations described the essential features of the project

_X__   Presentations utilized good quality slides and presentation aids

_X__   Presenters utilized their time effectively

_X__   Presenters spoke directly to the audience

_X__   Technical features were communicated clearly

_X__   Project artifacts clearly document all project features

_X__   Project reports are well organized and written

____   OTHER: _____

____   OTHER: _____

Program Outcome (j): *Have experience with contemporary environments and tools necessary for the practice of computing*

_X__   Project utilized contemporary design tools

_X__   Project implementation utilized a modern IDE(s)

_X__   Project utilized appropriate validation/testing tools

_X__   Project was demonstrated using appropriate presentation tools

_X__   Project utilized appropriate project management tools (e.g., MS Project)

____   Project utilizes appropriate version control/document sharing tools

_X__   Project documents consideration of trade-offs in selection of tools

____   OTHER: _____

____   OTHER: _____

ABET Student Outcome

The program must enable students to attain, by the time of graduation:
(j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices. [CS]

Please comment on how this project "*demonstrates comprehension of the tradeoffs involved in design choices*":

The project required the students to identify alternatives during the feasibility study and the system and detailed design. During the feasibility study the students were required to indentify at least two other solutions to solve the problem presented in the problem statement. The alternatives were evaluated based on four criteria, economic, schedule, operational and technical. Based on the results of the feasibility study the most appropriate alternative was used to solve the state problem.

During the system design the students selected at least two architectural patterns (three-tier and model view controller) from the pool of patterns based on the characteristics of the system to be decomposed. These patterns were used to decompose the system into subsystems. Patterns were also used during the detailed design based on the structure of the source code and the features being implemented. Students were required to used at least four patterns.