



Computer Science | 2015-2016 Assessment Report

1. Please give a brief overview of the assessment data you collected this year.

Assessment Report: Comp SCI 371 - Advanced Object Oriented Design, Spring 2016

Program Learning Objective:

Students must develop both written and verbal communications skills that support the design and documentation of software products and help utilities.

In order to assess the student development of both written and verbal communication skills within the mentioned class, we performed an assessment on the required semester-long class project based upon the object oriented software development life-cycle. This project had a significant documentation part requiring important writing skills towards the description of the overall software - its functionalities, design components, user manual, program coding and code comments. The project, which was executed in multiple groups/teams, also involved effective verbal communication skills as part of the teamwork as well as part of the overall project presentation plus demonstration due at the end of the semester.

The overall project was carried out three standard phases/stages of the object oriented software development process, namely:

- *Requirements Analysis (Phase 1)*: This phase included both writing and communication skills amongst the students as group/team members to analyze, organize and present the software's overall requirements - functionalities, technical specifications, feasibility analysis and acceptance criteria.

- *Design (Phase 2)*: This phase involved the students to document their software designs as groups/teams, showing their overall software look and process flow of data, including a diagrammatic visual representation.

- *Implementation (Phase 3)*: This phase required the students to document their code with comments and provided guidelines as well as construct a user manual for the end user of the software.

In addition to the listed three phases of project work, the class students were also required to write up a proposal describing their project ideas, motivations and plans as part of the initial documentation work at the beginning of the semester. There were end of the semester presentations plus demonstrations required from each group/team of students and this gave each group/team member the opportunity to talk and share their overall project work to the

class within a given time slot. Overall, this project proved to be a really good reference frame plus bench mark for assessing the chosen program learning objective, which involved measuring the student demonstration of written and communication skills that supported the design and documentation of a major software product and its utilities.

The various interesting project topics (8 projects in total) that the groups/teams worked upon are listed below:

- *RPG based Textual Adventure Game*
- *Recursive Maze Solver based Educational Game*
- *Hierarchical Quiz based Recursion Learning Tool (with Game Mode)*
- *Minesweeper based Game Application*
- *Sentiment Classifier based Tweeter Feed Analyzer*
- *Memory Optimization Learning based Educational Tool*
- *Circus Maximus based Dice Rolling Board Game*
- *File Conversion plus Transform based Utility Application*

The student grades from cited class project turned out to be a good metric for assessing the student abilities in regard to the selected program outcome. The overall assessment can be summarized through the report in the following section:

The overall student performances for Comp SCI 371 software term project are described below:

8 group/team projects; 8 group/team grades; 20 students; 4 groups/teams comprising of 3 students each and 4 groups/teams comprising of 2 students each

Total Number of "A" Letter Grades: 3

Total Number of "AB" Letter Grades: 3

Total Number of "B" Letter Grades: 2

Students generally fared very well on the mentioned term project in the class. If we take a "B" grade as an above-average grade for a computer science class, then all i.e. 100% of students achieved that benchmark. 70% of the students performed at the "A" and "AB" grade levels. The students, who scored a "B" grade, were relatively a bit behind in their writing and/or verbal communication skills, which were addressed during the class proceedings through faculty feedback and the corresponding students were informed to be made aware of their specific weaknesses.

We collected the presented data plus statistics directly from the class grade sheet. Generally speaking, we found out via direct interactions that the students really enjoyed the software building project experience of proposing an idea of a software product, designing plus developing that from scratch using the object oriented life-cycle and presenting that in front of

the whole class. Almost all students agreed the mentioned class project, which was executed collaboratively in groups/teams, formed a vital and integral part of their learning experience in this class. Most students appreciated the fact that this unique project experience would serve them well for their future professional careers.

Assessment Results:

The lesson learned from these observations plus assessment report (as shared in my previous response) is an affirmative that we need to continue using a curriculum that focuses on similar group/team projects based upon major software building that involves appropriate writing and verbal communication skills that support design and documentation of the end product and its utilities. While we remain committed to the benefits of such group/team projects at the departmental level, there is room for a meaningful survey exercise conducted with the student participants to determine the pedagogic learning impact and understand the future scopes of improvement in this project model.

Assessment Report: Comp SCI 372 – Software Engineering, Spring 2016

Program Learning Objective:

Students must be able to design the logic and information structures necessary to create software capable of solving problems subject to specified constraints.

To assess student ability to design and implement logic needed for quality software development, we performed an assessment on a semester-long project-based assignment. In CS372 this consisted of student selected projects. Projects were selected from a list of instructor chosen projects with the final choices being:

- Parking Garage Simulator
- Random Maze Generator
- Tower Defense Game
- Recipe database and phone app

Students were given detailed constraints in the form of a 10-page software specification. They then had to design and implement their solution as it conforms to this specification. 75% of the assignments were group project based assignments representing milestones during the course of the software development project.

The final project grade is the best instrument for measuring program learning objective #1. This assignment represents a full product life cycle with team work considered in the grade.

Assessment Results:

Grades for CS372 Team Project (4 team grades: 16 students):

A: 1

AB: 2

B: 1

2. How will you use what you've learned from the data that was collected?

Students generally did very well on the project. If we consider that a B grade is an above-average grade for a computer science course, then 100% of our students achieved this. Meanwhile 75% of the students performed at the A or AB level. The students who performed at the B level had trouble with the technology; they also had one student drop midway through the project. This was a valuable life lesson, as they were left to pick up the pieces. But yet they managed to score a grade of a B on the project even with technical and team constraints.