UNIVERSITY OF SAN FRANCISCO | College of Arts and Sciences

# <BSCS/ COMPUTER SCIENCE /MAJOR OR MINOR>

**ASSESSMENT REPORT**
**ACADEMIC YEAR 2020 – 2021**

## I. LOGISTICS

1. **Please indicate the name and email of the program contact person to whom feedback should be sent (usually Chair, Program Director, or Faculty Assessment Coordinator).**

   EJ Jung, ejung2@usfca.edu, Faculty Assessment Coordinator of CS dept.

**2. Please indicate if you are submitting report for (a) a Major, (b) a Minor, (c) an aggregate report for a Major & Minor (in which case, each should be explained in a separate paragraph as in this template), (d) a Graduate or (e) a Certificate Program**

(a) CS Major

**3. Please note that a Curricular Map should accompany every assessment report. Has there been any revisions to the Curricular Map?**

No changes were made.

## II. MISSION STATEMENT & PROGRAM LEARNING OUTCOMES

**1. Were any changes made to the program mission statement since the last assessment cycle in October 2020? Kindly state "Yes" or "No." Please provide the current mission statement below. If you are submitting an aggregate report, please provide the current mission statements of both the major and the minor program**

**Mission Statement (Major/Graduate/Certificate):**

No changes were made.

Students who graduate with a Bachelor of Science (B.S.) degree in Computer Science will be prepared for both graduate school and for software development careers. The curriculum provides a solid base in computer science fundamentals that includes software design and development, problem solving and debugging, theoretical and mathematical foundations, computer systems, and system software.

2. **Were any changes made to the program learning outcomes (PLOs) since the last assessment cycle in October 2020? Kindly state "Yes" or "No." Please provide the current PLOs below. If you are submitting <u>an aggregate report, please provide the current PLOs for both the major and the minor programs.</u>**

   **PLOs (Major/Graduate/Certificate):**

   No changes were made.

   - THEORY: Explain and analyze standard computer science algorithms and describe and analyze theoretical aspects of various programming languages.
   - APPLICATION: Apply problem-solving skills to implement medium- and large-scale programs in a variety of programming languages.
   - SYSTEMS: Describe the interactions between low-level hardware, operating systems, and applications.
   - PROJECT: Demonstrate effective communication and organization as part of a team of software developers or researchers collaborating on a large computer program.

3. **State the particular Program Learning Outcome(s) you assessed for the academic year 2020-2021.**

**PLO(s) being assessed (Major/Graduate/Certificate):**

- APPLICATION: Apply problem-solving skills to implement medium- and large-scale programs in a variety of programming languages.

## III. METHODOLOGY

**Describe the methodology that you used to assess the PLO(s).**

Students work on a final project over many milestones to demonstrate that they can apply data visualization techniques learned in CS 360 Data Visualization to a mediam- or large-scale programs. Here is the grading rubric for the final project.

1. **Final Project Report** (50 points) - The report must be in an IEEE format. Word and LaTeX templates can be found at **https://www.ieee.org/conferences/publishing/templates.html.** The report must contain the following sections:
    - Introduction
    - Related Work
    - Approach
    - Results
    - Discussion
    - Conclusion & Future Work
2. **Slides** (25 points) - The slides you used for your final presentation. Make sure to include images / results section. Check for typos and grammar. Take an appointment with the writing center if you would like them to go over your report and slides. **https://myusf.usfca.edu/lwsc/writing-center**
3. **Demo video** (25 points) - A short video demonstrating all the features of your project
4. **Code & Data** (25 points) - All the code written by you along with all the data that you downloaded / scraped. Make sure to include all the dependencies if they must be downloaded. Make sure to clean and document your code. You will lose points if you don't have any comments.
5. **User manual** (25 points) - If another student / team was to take up your project, what would you like them to know. Libraries used and their version numbers, Interaction shortcuts, anything that needs to be done to set up the project, etc. Note: I will follow the user manual to run your project to grade you, please test things out before you submit it. You will lose points for poorly written user manual with instructions that do not work.

## IV. RESULTS & MAJOR FINDINGS

**What are the major takeaways from your assessment exercise?**

To assess mastery, we split the students into four groups:

1: "complete mastery of the outcome"
2: "mastered the outcome in most parts",
3: "mastered some parts of the outcome"
4: "did not master the outcome at the level intended."

In Spring 2021, 20 out of 21 students showed the complete mastery of the outcome, achieving over 90% in their final projects. One student who didn't show the complete mastery did not submit any assignments, and failed the course accordingly.

Interpretation of the results:

- All students who passed this course (and counted this course towards their CS major) showed the complete mastery of the skills in their final project, so students who are graduating from CS major are achieving the intended learning outcome in Application.
- 3 students who showed the complete mastery still failed the course, receiving C-, C- and D. It was due to missed or very low scores in other assignments earlier in the semester. Reaching out earlier in the semester when students start to show struggles in their time management may help.

## V. CLOSING THE LOOP

**1. Based on your results, what changes/modifications are you planning in order to achieve the desired level of mastery in the assessed learning outcome? This section could also address more long-term planning that your department/program is considering and does not require that any changes need to be implemented in the next academic year itself.**

As mentioned above, earlier outreach when students show the first sign of struggles with their time management will be considered.

**2. What were the most important suggestions/feedback from the FDCD on your last assessment report (for academic year 2016-2017, submitted in October 2017)? How did you incorporate or address the suggestion(s) in this report?**

We did a reflection with a survey last year, checking in with students and faculty to see how they were adapting to remote learning. The feedback was encouraging that we learned a meaningful lesson that students and faculty both seek for more community building events, and we did so virtually and in-person since. The events were well-received.

However, there is ongoing struggle from both students and faculty as we resume in-person learning in Spring 2022. From the survey last year, half of the students actually preferred learning remotely and/or asynchronously and they are expressing concerns that we only offer in-person learning while we are still in pandemic, and they will have to move to San Francisco.

## ADDITIONAL MATERIALS

**(Any rubrics used for assessment, relevant tables, charts and figures should be included here)**