CSPB 3308 Summer 2024 - Nath - Software Development Methods and Tools

Introduction to the Team Project

Team Project: 100 Points, comprises 46% of Course Grade

Team project you will have you work together in a team of three or four. This project will give you essential practice working with teams to develop software. You will decide together on a project idea, collaborate on designing, implementing, testing, and demonstrating your results in a group a presentation. Teams will be assigned based on student schedules.

The emphasis is on methods and tools, not on completing a fully working product. You will be working with web applications in this course, but you can choose almost anything for your software project (you should check with the instructor to make sure it covers the required elements for a project). Ask the instructor or fellow students if you need inspiration.

Each project will need to have management for the project development as well as a frontend, backend, database, and automated testing. We suggest that you assign two team members to each role so you can shared the responsibility and the gained experience. These roles can change during the project . Some teams work by assigning the next development task to any member who will work across all the components. This method requires disciplined use of the version control system to manage simultaneous development branches that are merged upon task completion.

Project Milestone 1: Project Proposal (10 points)

Create a GitHub repository with all team members as collaborators
[Make sure to add access for the instructor(s)]

- Create a `README.md` file for the repository and include the following:
  - Project title (must be something representing your project)
  - Team #
  - Team/Product Name
  - Team members: list the name, git username, and email for each member.
  - Day/Time/TimeZone for the scheduled team weekly meeting (30 minutes via Zoom)
  - Vision statement: what would you tell potential customers?
  - Motivation: why are you working on this project?
  - Risks to project completion, possibly including:
  - new language or working environment
  - no prior experience working with these team members
  - lack of some needed resources
  - Mitigation Strategy for above risks
  - Development method: scrum, kanban, waterfall: with specifics!
  - Project Tracking Software link (Trello is most common)
    [Make sure to add access for the instructor(s)]

- **Each Team Member** must submit to the Moodle Assignment for Project Milestone #1, the following information:
  - Student Name:
  - GitHub username:
  - GitHub Project Repository link:
  - Project Tracking Software link:

Project Milestone 2: Agile Meeting Recording (10 points)

All group members and the instructor must attend the meeting being recorded.
This may mean you need to find an alternative meeting time that can include the instructor.

You will record a weekly Agile meeting after a sprint and must include the following three parts:

    1. Weekly Standup (~5 minutes total for all team members) Each team member must provide the following:

- What did you do last week?
- What are you doing this week?
- Are any obstacles stopping you?

    2. End-of-Sprint Demonstration (~10 minutes)

- Must show progress on the project from the previous week.
- Show what you have achieved for the sprint
- Do **NOT** show code or database, your client is not a programmer!

    3. Sprint Retrospective (~5 minutes)

- What went well
- What didn't work
- How can the team improve

Project Milestone 3: Weekly Status (10 pts)

Your team will continue the agile meetings every week during the course project. To show your progress during the project, your team is required to keep a log of the status for each week.

- Your team will create a file `WEEKLY_STATUS.md` in your repository containing each week's status during the project.
- Your team can assign one team member to append the status for each week to the repository's status file. This could be either a rotating or permenant role.
- When you are using a project management tool correctly, taking a snapshot of the current state of your project management tool (with additional commentary text as needed) would be an easy way to provide each week's status.
- This weekly status will be graded twice during the project (50 points each).

Project Milestone 4: Web Pages Design (15 pts)

You will create a list of descriptions for the pages that will be implemented for your project. You must add a file `PAGE_TESTING.md` to your repository and provide the following for each page (at least 5 independent pages):

- Page Title
- Page Description (include a mockup or hand drawn image of the page)
- Parameters needed for the page
- Data needed to render the page
- Link destinations for the page

- List of tests for verifying the rendering of the page

Project Milestone 5: SQL Design (15 pts)

You will create a list of descriptions for tables and functions being created for the project.
You must add a file `SQL_TESTING.md` to your repository and provide the following for each table (at least 3 tables):

- Table Name
- Table Description
- For each field of the table, provide name and short description.
- List of tests for verifying each table

You must also provide the following (in `SQL_TESTING.md`)for each data access method (at least one access method for each table or query required to get the data to display):

- Name
- Description
- Parameters
- return values
- List of tests for verifying each access method

Here is a format that can be used for describing each test:

```
        Use case name
            Verify login with valid user name and password
        Description
            Test the Google login page
        Pre-conditions
            User has valid user name and password
        Test steps
            1. Navigate to login page
            2. Provide valid user name
            3. Provide valid password
            4. Click login button
        Expected result
            User should be able to login
        Actual result
            User is navigated to dashboard with successful login
        Status (Pass/Fail)
            Pass
        Notes
            N/A
        Post-conditions
            User is validated with database and successfully signed into their account.
            The account session details are logged in database.
```

Project Milestone 6: Individual Interview (5 points)

An individual meeting with the instructor by each member of the team to discuss your contributions to the project.

Project Milestone 7: Presentation (15 points)

Your team will give a 10-15 minute presentation (with additional 5 mins for questions) of your project through via Zoom. All members must be present and each member must present information during the presentation.
Your presentation should be a professional presentation with slides that cover the following:

- Project:
  - Title of Project
  - Team members' names

- All the tools your team used
  - Name of the tool and purpose
  - Your team's evaluation of the tool: Excellent? Useless?

- Challenges you encountered, how you overcame them, how your plans changed
- Project Retrospective - Team dynamics

  - What worked well
  - What didn't work
  - How could you improve the team dynamics / performance

- Demonstration of your project

Here are some of the possible tools that should be included in your presentation: * project tracker * version control * database * testing * auto-documenter * deployment environment * programming languages and frameworks * code editors * . . .

Project Milestone 8: Final Report Submission (10 points)

Make sure that everyone on the team has all code and other materials pushed to the project repository.

Create a final report markdown file `FINAL_REPORT.md` with the following information:

- Project Title

- Team members' names
- Project tracker link (Instructor can access)
- Link to 5 minute video: a demo for a potential customer (could be same one you used in the presentation)
- Version control repository link (make sure the instructor(s) have access)
- Include a Final Status Report
  - What you completed
  - What you were in the middle of implementing
  - What you had planned for the future
  - Any known problems (bugs, issues)
- List your public hosting site and make sure that it is available

Make sure that your repository has the following files committed to remote repository:

- REAMDE.md
- WEEKLY_STATUS.md
- PAGE_TESTING.md
- SQL_TESTING.md
- FINAL_REPORT.md
- Project presentation files from Milestone 5
- Video of demo
- Source code
- Test cases
- Source documentation, and auto-doc files
- Link to Public Deployment Site (Heroku or similar)

Project Milestone 9: Peer Evaluation & Project Reflection (5 points)

Every member of the team must provide a peer review of the other team members contributions. This evaluation is not shared with other students and should be an honest assessment of the project. Each evaluation category must be thoughtfully prepared. You must use a different score for each person.

- Download the spreadsheet.
  - Fill in evaluation information about your group members, including the text boxes. Note: putting all the same # in everything or per person or the like does not count as filling out a peer evaluation and will receive a zero.

- Choose one of the following to answer in a short paragraph in the spreadsheet.
  Grading will be based on the quality of your answer and how well you handle team dynamics. Be honest. An interviewer can always tell if you are being genuine. One goal of this exercise is to prep you for interviewing.

  - Give an example of when you worked in a team and there was conflict or disagreement. How did you handle it? Did you reach a consensus? What would you do differently next time?
  - Give an example of when you worked in a team and one member always dominated the meetings and discussions. What did you do to help the rest of the team become more involved? What would you do differently next time?
  - Give an example of when you worked in a team and one member refused to do any work. How did you handle the situation? What would you do differently next time?

- Your grade for this milestone will consist of 5 points for your evaluation of your teammates.

Project Milestone 10: Team Participation and Contribution (0-10 points) (EXTRA CREDIT)

Each member of the team is responsible for contributing to the project. Not every member will not contribute the same amount to the success of the project. When the Peer Evaluations are reviewed, we may find individuals that contributed more and individuals who contributed less than the average. Using the overall evaluations for each team, the instructors will award additional points for participation and contributions as follows: 0 for low evaluation, 5 for average evaluation, and up to 10 for receiving an outstanding evaluation from your team members.

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