PQRC Database Functional Requirements

1. Introduction

This document outlines the functional requirements for the proposed Peterson Quantitative Resource Center (PQRC) Database Solution. This solution seeks to replace the current PQRC data storage system and provide functionality useful for running the PQRC as a director and using the PQRC as a student.

2. Use Cases

This document outlines intended use cases for PQRC directors, mentees, and mentors. They are labeled with a unique identifier and a priority in order of importance to project. For definitions/examples of **mentor schedule csv file**, **mentor coverage csv file**, **and overall course coverage sheet**, see the appendix.

	Director Use Cases (Jill)	**Priority**
A1	Jill wants to insert semester-long mentor schedules, so she uploads a **mentor schedule csv file**	1
A2	Jill wants to insert course and software coverage information about mentors, so she uploads a **mentor coverage csv file**	1
A3	Jill wants to generate a semester-long course coverage sheet, so she clicks a button and receives an **overall course coverage sheet** for the semester.	1
A4	Jill has to change the semester-long mentor schedule, so she updates her csv file and re-uploads the **mentor schedule csv file**.	1
A5	Jill wants to print the mentor schedule, so she clicks a button to receive an overall schedule sheet	1
A6	Jill wants to generate a course coverage sheet for a given day that reflects short term shift switches, so she inputs a day of the week and receives an **overall course coverage sheet** for that day.	3

	Mentee Use Cases (John and Jessica)	**Priority**
B1	John is curious when a particular class or software is covered, so he enters the class in a form and receives a list of days and times when that course is covered	1
B2	Jessica wants to know what mentors are working at a given time, so she inserts a time and day and receives a list of mentors working at that time.	1
B3	Jessica wants to learn more about the mentors at the PQRC, so she scrolls through a list of student mentors and sees biographical information on their **mentor information page** and the times they work.	2

	Mentor Use Cases (Jack and Sally)	**Priority**
C1	After three weeks in the semester, Jack no longer feels comfortable helping students with a particular class or software, so he updates his course coverage through a web form	1
C2	Sally doesn't feel comfortable sharing information about herself on her **mentor information page**, so she toggles multiple options to hide certain parts of her mentor information page from the public. Her course coverage information is still displayed in course coverage outputs.	2
C3	Sally has joined a new club, so she updates her mentor biography information through a web form.	2
C4	Jack has a one-time conflict and Sally offers to cover his shift, so they both fill out a webform confirming the one-time switch.	3

3. Functional Requirements

Given the previous use cases for directors, mentees, and mentors of the PQRC, this proposed database system has the following functional requirements

	Functional Requirement	**Priority**	**Use Cases**
	Support upload of **mentor schedule csv** and **mentor coverage csv** for data input	1	A1, A2, A4
	Output **overall coverage sheet** and **overall schedule sheet** for a generic week	1	A3, A5

	Given a course or software, output a list of days and times that course or software is covered	1	B1
	Given a day and time, output a list of mentors working	1	B2
	Support manual mentor course coverage changes	1	C1

Additionally, this proposed database system has the following non-functional requirements (nice to haves, but not required)

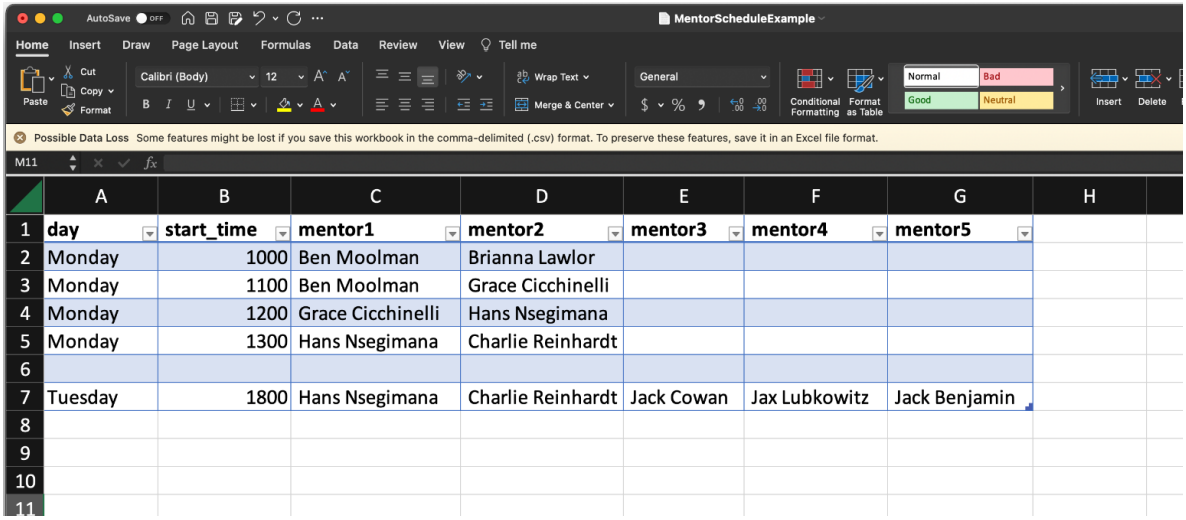
	Non-functional requirement (nice-to-haves)	**Priority**	**Use Cases**
	Allow a mentee to scroll through a “meet the mentors” page	2	B3
	Allow a mentor to hide/show information on their **mentor information page**	2	C2
	Allow a mentor to update information on their **mentor information page**	2	C3
	Support one-time shift changes in mentor schedule and course coverage queries	3	A6, C4

This project will focus on implementing support for the functional requirements. Then, this project will shift to implement support for non-functional requirements

4. Appendix

4.1. Mentor Schedule CSV File

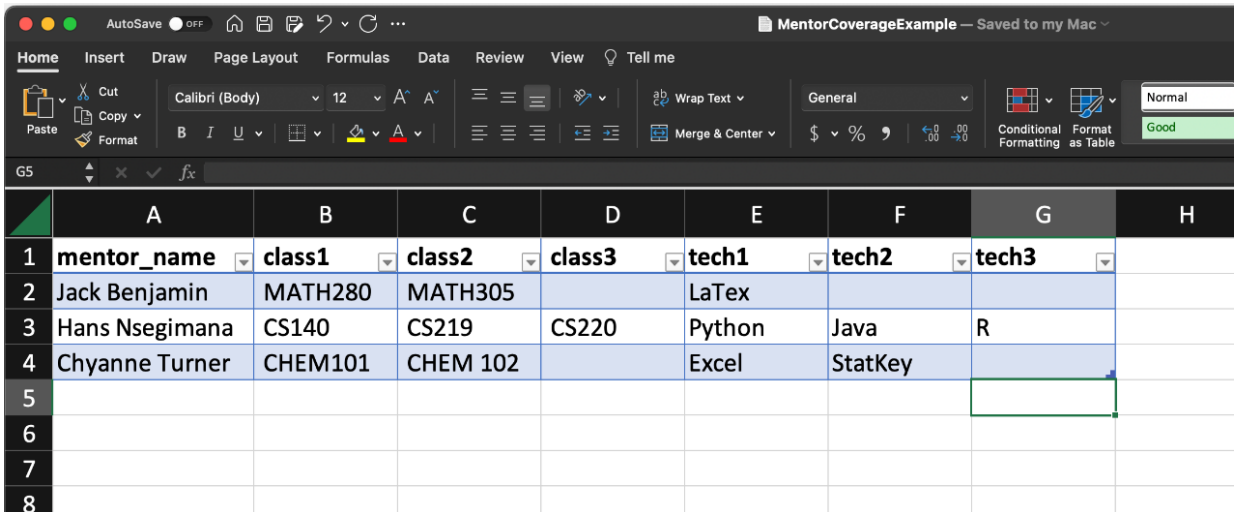
The following csv file format (pictured in excel) will be the supported input format for mentor schedules



	A	B	C	D	E	F	G	H
1	day	start_time	mentor1	mentor2	mentor3	mentor4	mentor5	
2	Monday	1000	Ben Moolman	Brianna Lawlor				
3	Monday	1100	Ben Moolman	Grace Cicchinelli				
4	Monday	1200	Grace Cicchinelli	Hans Nsegimana				
5	Monday	1300	Hans Nsegimana	Charlie Reinhardt				
6								
7	Tuesday	1800	Hans Nsegimana	Charlie Reinhardt	Jack Cowan	Jax Lubkowitz	Jack Benjamin	
8								
9								
10								
11								

4.2. Mentor Coverage CSV File

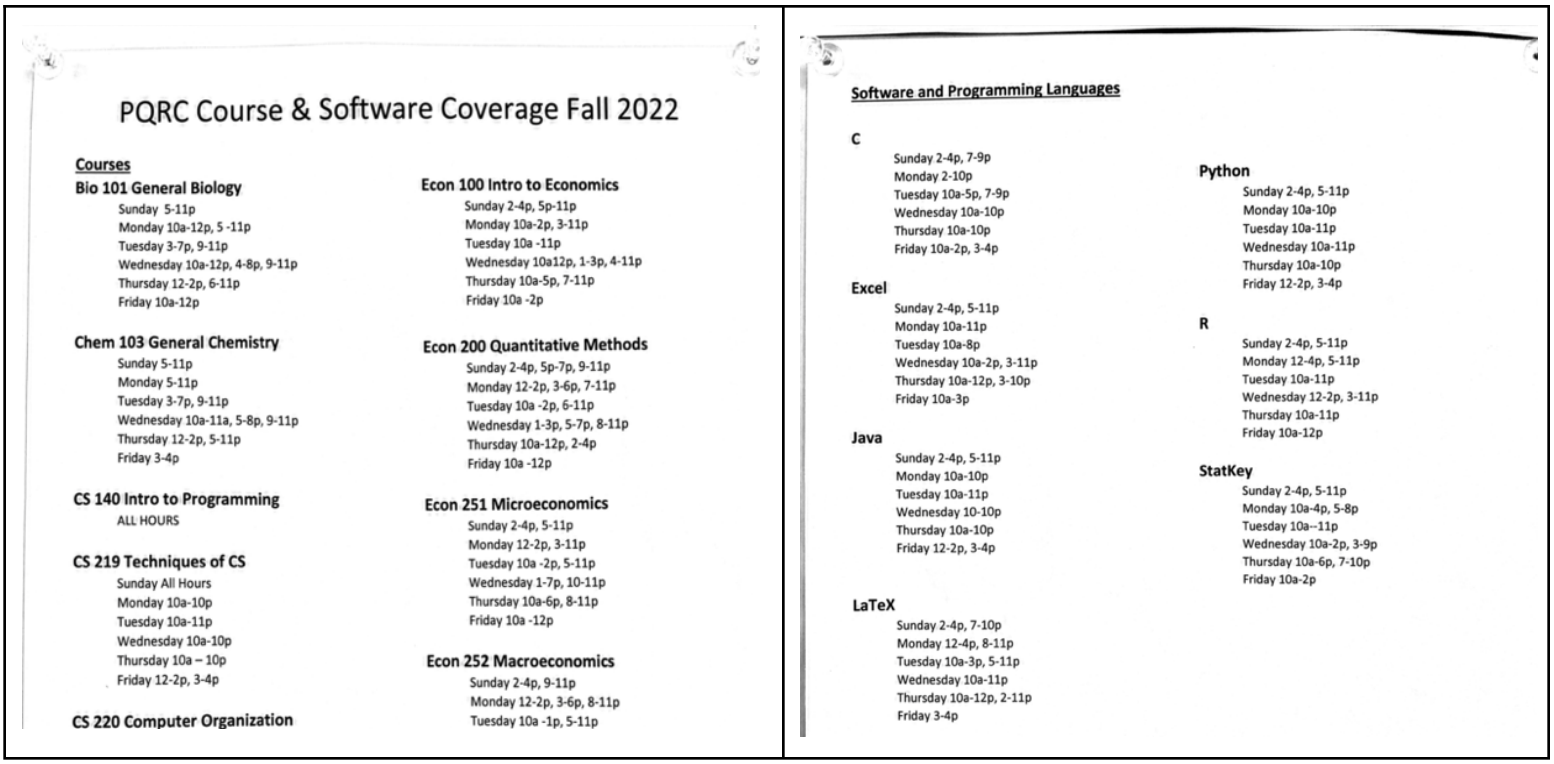
The following csv file format (pictured in excel) will be the supported input format mentor coverage schedules



	A	B	C	D	E	F	G	H
1	mentor_name	class1	class2	class3	tech1	tech2	tech3	
2	Jack Benjamin	MATH280	MATH305		LaTex			
3	Hans Nsegimana	CS140	CS219	CS220	Python	Java	R	
4	Chyanne Turner	CHEM101	CHEM 102		Excel	StatKey		
5								
6								
7								
8								

4.3. Course Coverage Sheet

Below is a copy of this semester's course coverage and software coverage sheet for reference.



PQRC Course & Software Coverage Fall 2022

Courses

Bio 101 General Biology
Sunday 5-11p
Monday 10a-12p, 5 -11p
Tuesday 3-7p, 9-11p
Wednesday 10a-12p, 4-8p, 9-11p
Thursday 12-2p, 6-11p
Friday 10a-12p

Chem 103 General Chemistry
Sunday 5-11p
Monday 5-11p
Tuesday 3-7p, 9-11p
Wednesday 10a-11a, 5-8p, 9-11p
Thursday 12-2p, 5-11p
Friday 3-4p

CS 140 Intro to Programming
ALL HOURS

CS 219 Techniques of CS
Sunday All Hours
Monday 10a-10p
Tuesday 10a-11p
Wednesday 10a-10p
Thursday 10a – 10p
Friday 12-2p, 3-4p

CS 220 Computer Organization

Econ 100 Intro to Economics
Sunday 2-4p, 5p-11p
Monday 10a-2p, 3-11p
Tuesday 10a -11p
Wednesday 10a12p, 1-3p, 4-11p
Thursday 10a-5p, 7-11p
Friday 10a -2p

Econ 200 Quantitative Methods
Sunday 2-4p, 5p-7p, 9-11p
Monday 12-2p, 3-6p, 7-11p
Tuesday 10a -2p, 6-11p
Wednesday 1-3p, 5-7p, 8-11p
Thursday 10a-12p, 2-4p
Friday 10a -12p

Econ 251 Microeconomics
Sunday 2-4p, 5-11p
Monday 12-2p, 3-11p
Tuesday 10a -2p, 5-11p
Wednesday 1-7p, 10-11p
Thursday 10a-6p, 8-11p
Friday 10a -12p

Econ 252 Macroeconomics
Sunday 2-4p, 9-11p
Monday 12-2p, 3-6p, 8-11p
Tuesday 10a -1p, 5-11p

Software and Programming Languages

C
Sunday 2-4p, 7-9p
Monday 2-10p
Tuesday 10a-5p, 7-9p
Wednesday 10a-10p
Thursday 10a-10p
Friday 10a-2p, 3-4p

Excel
Sunday 2-4p, 5-11p
Monday 10a-11p
Tuesday 10a-8p
Wednesday 10a-2p, 3-11p
Thursday 10a-12p, 3-10p
Friday 10a-3p

Java
Sunday 2-4p, 5-11p
Monday 10a-10p
Tuesday 10a-11p
Wednesday 10-10p
Thursday 10a-10p
Friday 12-2p, 3-4p

LaTeX
Sunday 2-4p, 7-10p
Monday 12-4p, 8-11p
Tuesday 10a-3p, 5-11p
Wednesday 10a-11p
Thursday 10a-12p, 2-11p
Friday 3-4p

Python
Sunday 2-4p, 5-11p
Monday 10a-10p
Tuesday 10a-11p
Wednesday 10a-11p
Thursday 10a-10p
Friday 12-2p, 3-4p

R
Sunday 2-4p, 5-11p
Monday 12-4p, 5-11p
Tuesday 10a-11p
Wednesday 12-2p, 3-11p
Thursday 10a-11p
Friday 10a-12p

StatKey
Sunday 2-4p, 5-11p
Monday 10a-4p, 5-8p
Tuesday 10a--11p
Wednesday 10a-2p, 3-9p
Thursday 10a-6p, 7-10p
Friday 10a-2p

4.4. Mentor Information Page

A fully fledged UI for a mentor information page is outside of the scope of this project. Rudimentary mentor information output will look as follows:

```
Charlie Reinhardt
Major: Computer Science
Minor: Statistics and Communications
Year: Senior
Hobbies: Running, Biking, Skiing
Favorite Emoji: Cowboy Smiley
Courses Covered:
    CS140      CS219     CS220     CS256
    STAT113    STAT213   STAT234
Times Worked:
    Sun 7-9pm
    Mon 1-3pm
    Tue 12-2pm
```