



CHORDSCORE

RUTH BEARDEN, ZSAVAUGHN DANIEL,
DAISY HERNANDEZ, TADIWA MANGADZE,
AUSTIN ROBERTS



INTRODUCTION



SCOPE

- How it works...
- Student
- Professor
- Optical Music Recognition (OMR)



SCOPE

- How it works...
 - Student
 - Professor
 - Optical Music Recognition (OMR)

The image displays a musical score for three staves. The top staff is in treble clef with a 6/8 time signature. The middle staff is in bass clef with an 8/8 time signature. The bottom staff is in bass clef with an 8/8 time signature. Each staff contains eight measures of music, with intervals labeled below each measure. Two measures in the top staff are highlighted with red boxes.

Staff	Measure	Interval
Top Staff (6/8)	1	P4
	2	M3
	3	P5
	4	M6
	5	M2
	6	M7
	7	P5
	8	M7
Middle Staff (8/8)	1	M6
	2	P5
	3	M3
	4	M7
	5	M2
	6	P4
	7	P5
	8	M6
Bottom Staff (8/8)	1	M3
	2	P4
	3	M6
	4	M3
	5	M7
	6	P4
	7	M2
	8	M6

SCOPE

- How it works...
 - Student
 - Professor
 - Optical Music Recognition (OMR)

The image displays three staves of musical notation, each with eight notes and an interval label below. The staves are highlighted with light blue borders.

Staff 1 (Treble clef):
Notes: G4, A4, B4, C5, B4, A4, G4, F#4
Intervals: P4, M3, P5, M6, M2, M7, P5, M7

Staff 2 (Bass clef):
Notes: G3, A3, B3, C4, B3, A3, G3, F#3
Intervals: M6, P5, M3, M7, M2, P4, P5, M6

Staff 3 (Alto clef):
Notes: G3, A3, B3, C4, B3, A3, G3, F#3
Intervals: M3, P4, M6, M3, M7, P4, M2, M6

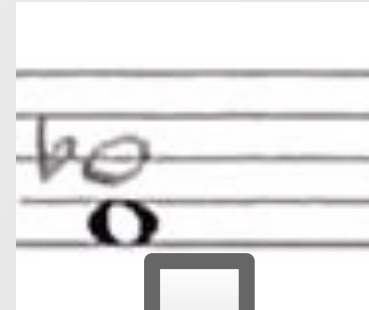
points=8

points=8

points=8

SCOPE

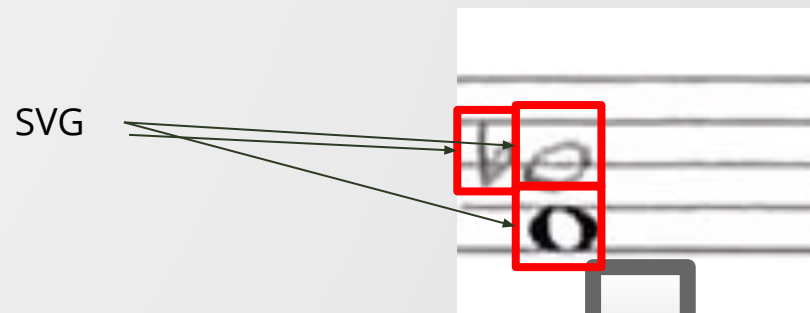
- How it works...
 - Student
 - Professor
 - Optical Music Recognition (OMR)



```
1 note
2   pitch    = 4
3   symbols  = "flat"
4   duration = 0.4
5
6
7
8
```

SCOPE

- How it works...
 - Student
 - Professor
 - Optical Music Recognition (OMR)

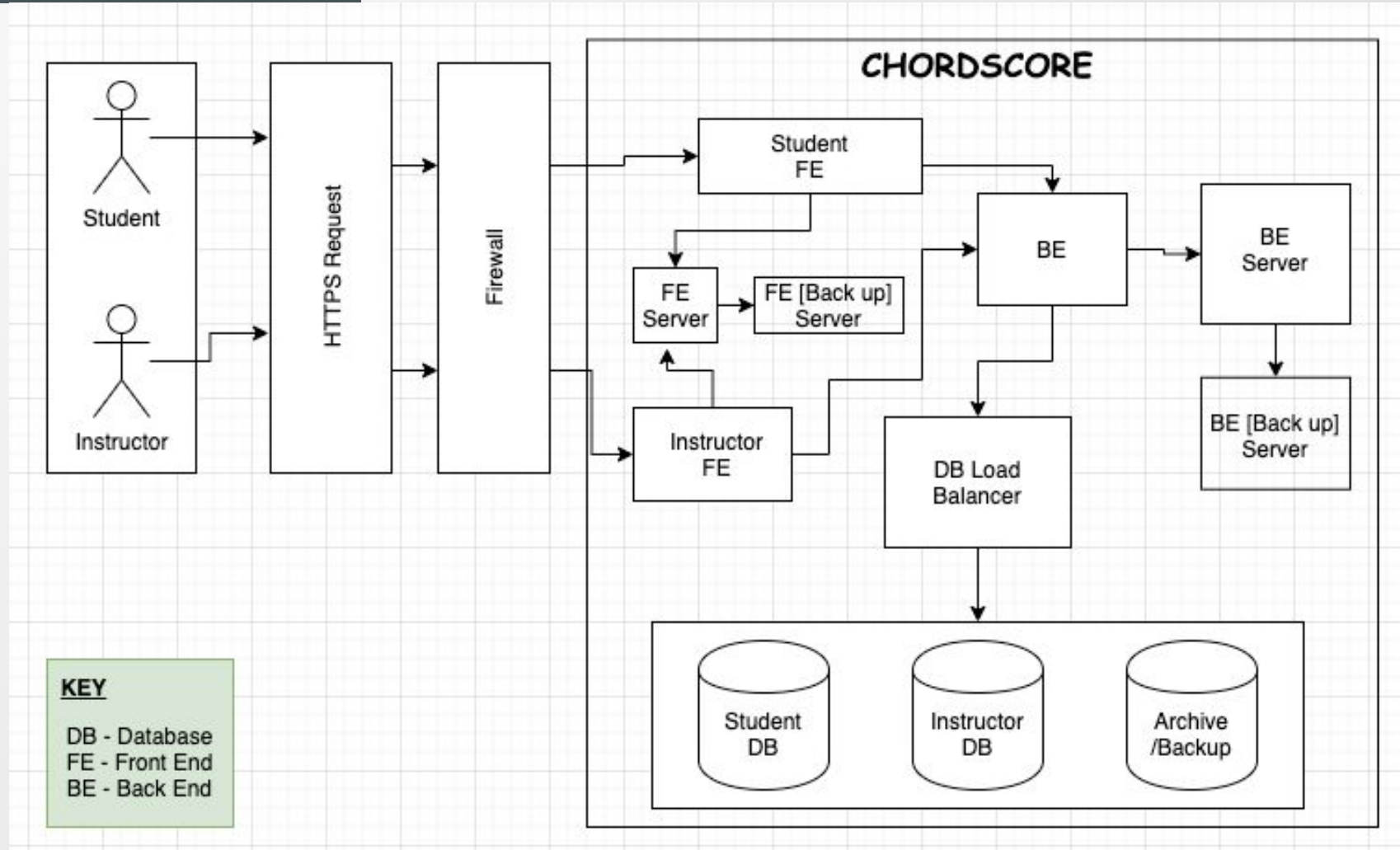


For training CNN...

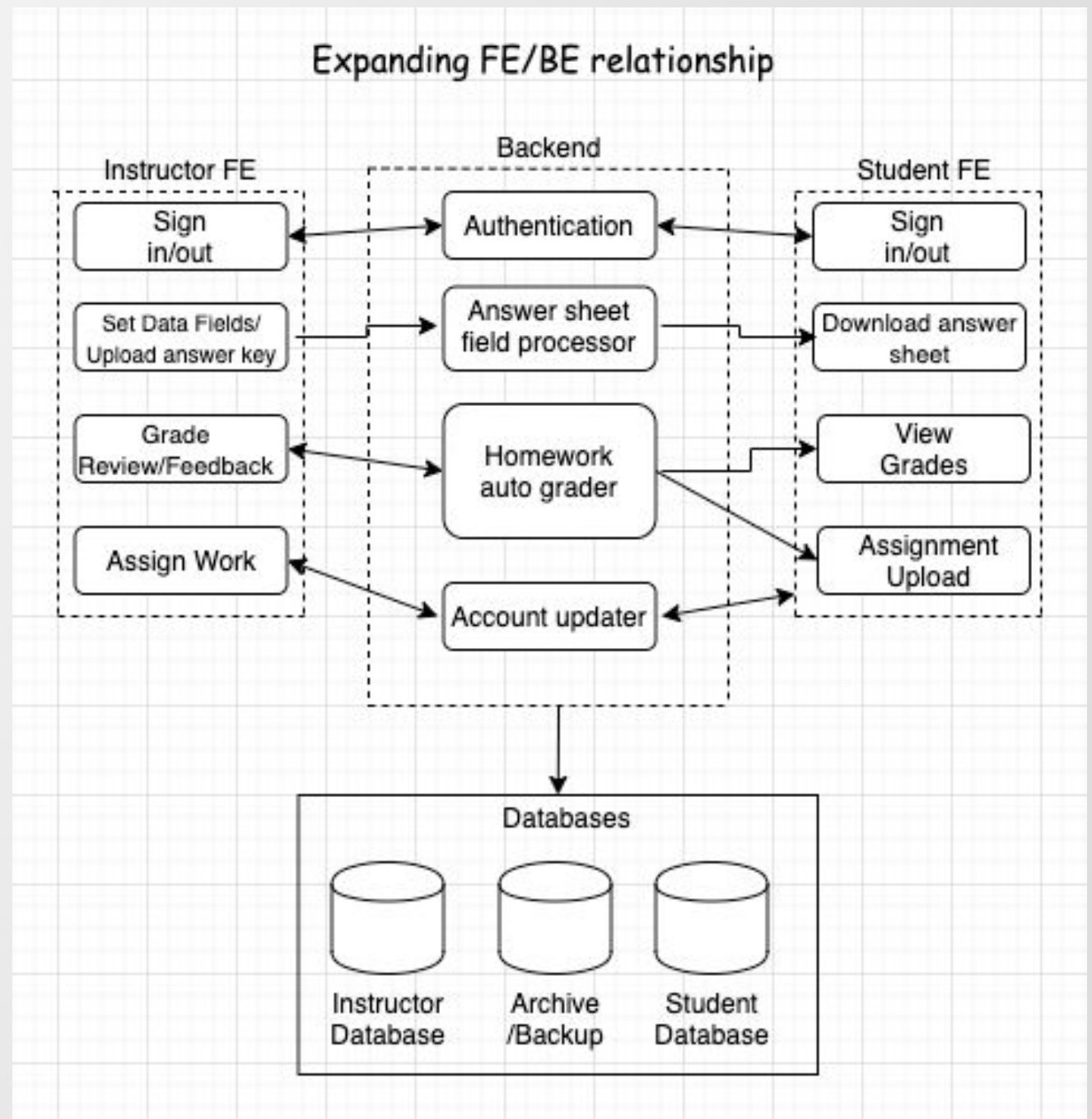
- INPUT = JPEG images
- OUTPUT = SVG boxes
& MusicXML attributes

```
1 note
2   pitch    = 4
3   symbols  = "flat"
4   duration = 0.4
5
6
7
8
```

WEB APP ARCHITECTURE



CONTINUATION



INTERFACE DESIGN

← → ① File | C:/Users/rober/Documents/GitHub/ChordScore/web-app/front-end/chordscore/web/index.html



WELCOME

"Music gives a soul to the universe, wings to the mind, flight to the imagination and life to everything."
— Plato

Windows logo Type here to search



System tray area showing network, volume, and power icons, along with the time 7:36 PM and date 3/1/2020.

INTERFACE DESIGN

← → 🔄 ⓘ File | C:/Users/rober/Documents/GitHub/ChordScore/web-app/front-end/chordscore/web/index.html

☆ 🔔 ⋮

×

Login
Create Account
Plagiarism
Resources
Support
Contact Us

WELCOME

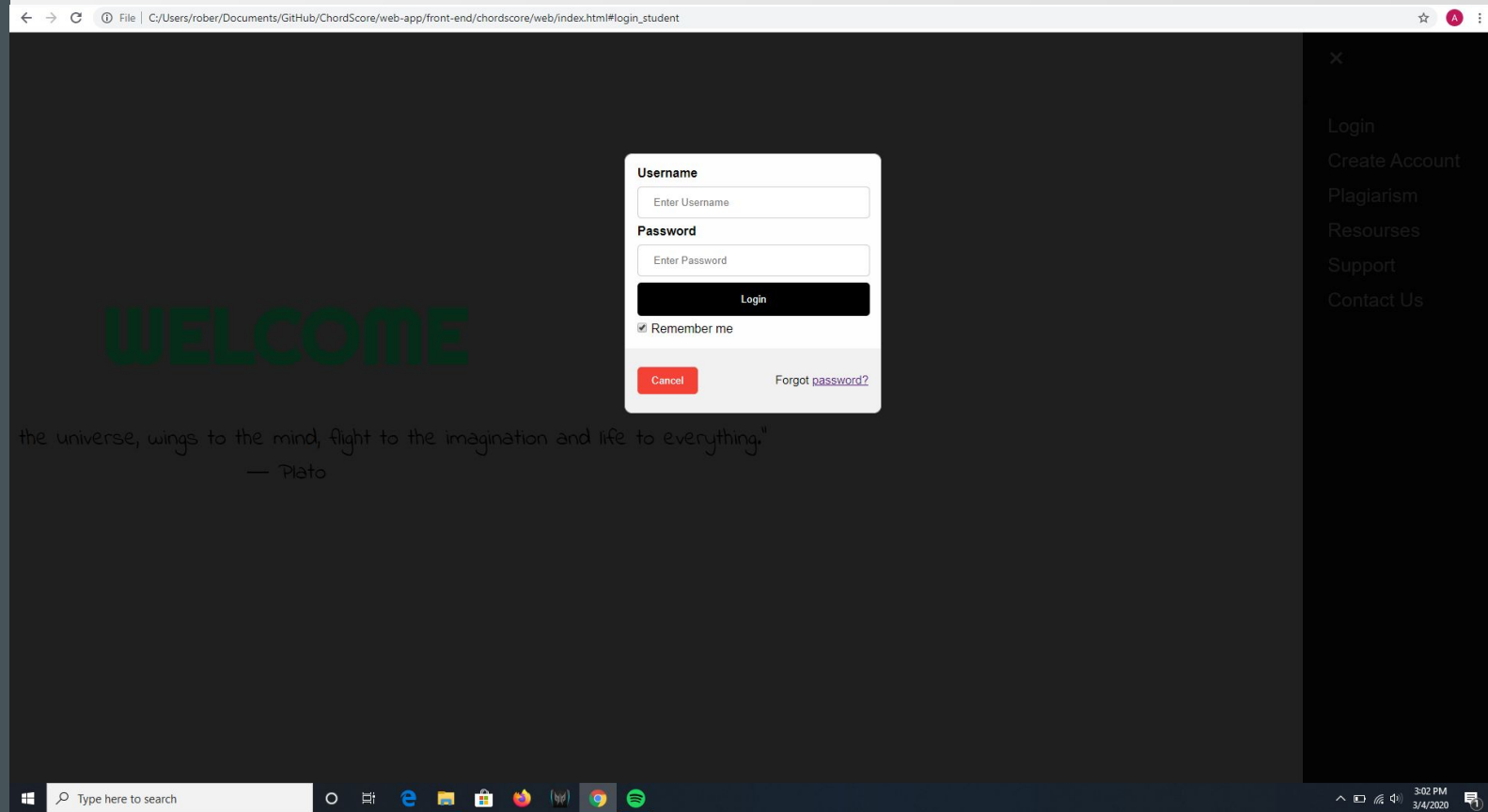
the universe, wings to the mind, flight to the imagination and life to everything."
— Plato

🪟 🔍 Type here to search

🔍 📁 🛒 🔥 🗂️ 🌐

⬆️ 📶 🔊 🔌 7:41 PM 3/1/2020 🗨️

INTERFACE DESIGN



INTERFACE DESIGN

CHORDSCORE

Good day Tadiwa!

Class Portfolio My Grades MoreStuff MoreStuff

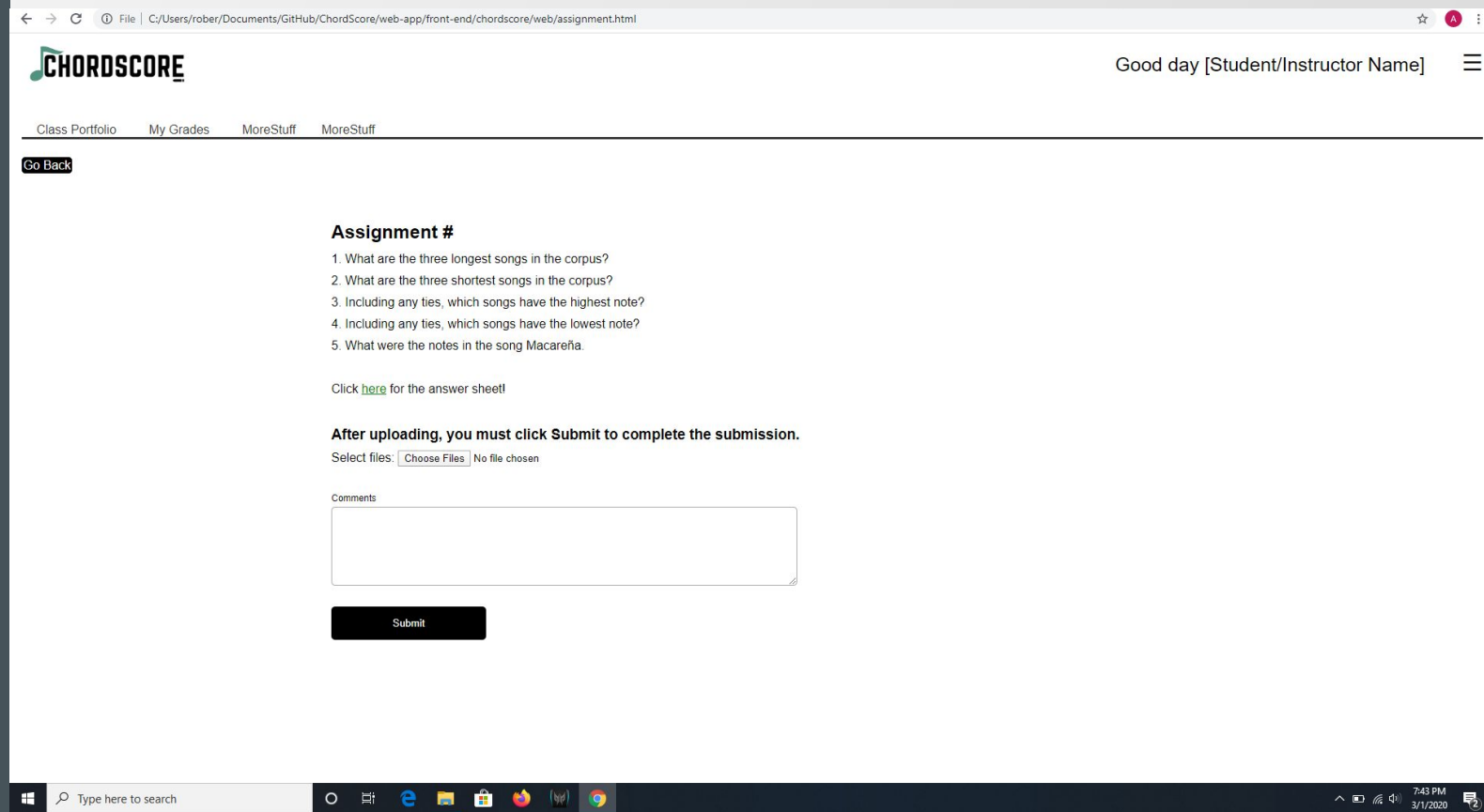
Sunday 19:43:01

Assignment	Completion Status	Score	Evaluation Status	Due Date
[Section Name]				
Assignment 1	2 Submissions, 2 Files	95 / 100 - 95 %	Feedback: Read	Feb 14, 2020 11:59 PM
Assignment 2	No Submissions	--	--	Feb 28, 2020 11:59 PM

7:43 PM 3/1/2020



INTERFACE DESIGN



INTERFACE DESIGN

← → ⓘ File | C:/Users/rober/Documents/GitHub/ChordScore/web-app/front-end/chordscore/web/grades.html ☆ A ⋮

CHORDSCORE ≡

Class Portfolio **My Grades** MoreStuff MoreStuff

Grade Item	Points	Grade	Feedback
Assignments		95%	
Assignment 1	9.5 / 10	95 %	3. -5, not the same as the BNF rule due to the parentheses.
Assignment 2	-- / 10	-- %	--
Quizzes		90%	
Q 1	9.5 / 10	95 %	good job
Q 2	8.5 / 10	85 %	see me

Windows Type here to search 7:44 PM 3/1/2020

DATA SAMPLES

- Modeling music notation with a Neural Network requires data samples similar to homework expected from students
- Data collection sheets
 - Partially handwritten notation
 - Printed notation only

DATA SAMPLES



WRAP-UP

Next Steps

- Build, train, and evaluate supervised CNN model with...
 - INPUT as JPEG images of the music notation (handwritten and printed)
 - OUTPUT as...
 - **bounded boxes** from music SVG files for **object detection**
 - **pitch, note symbol**, and **duration** attributes from MusicXML files for **note attribute prediction**