

ASSIGNMENT BRIEFING

ITP4507 CTSE

ASSIGNMENT AT A GLANCE

Friday 14 November, 2025

66.67% of the EA

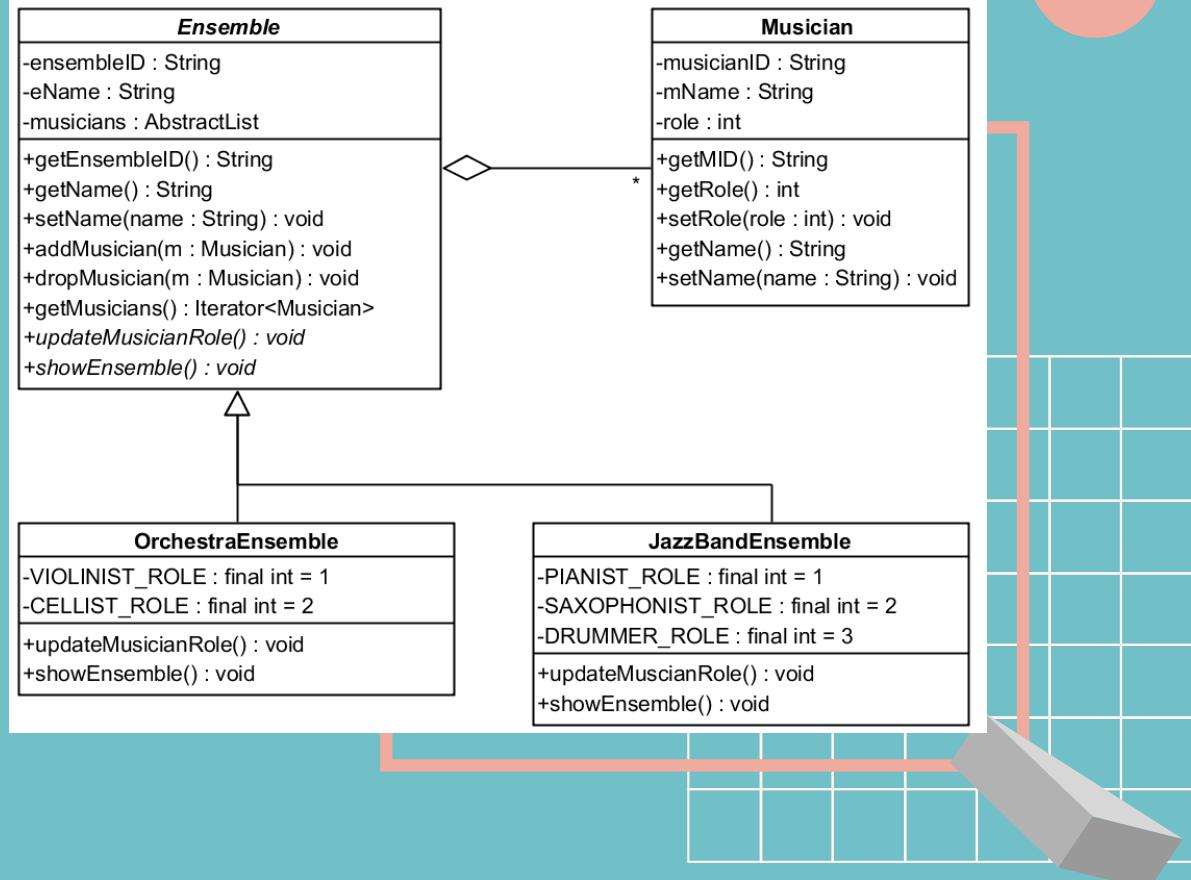


**Source Code and
Short Report**

**On or before 4:30 PM to
Moodle**

SCENARIO

- Ensemble is an abstract class (so as its abstract functions:
updateMusicianRole(),
showEnsemble())
- you may use Vector or
LinkedList for AbstractList
in Ensemble.
- not to change the design of
the existing classes:
Ensemble,
OrchestraEnsemble,
JazzBandEnsemble, and
Musician.



SCENARIO

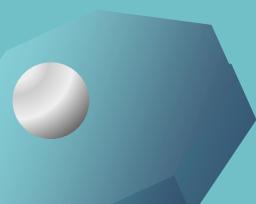
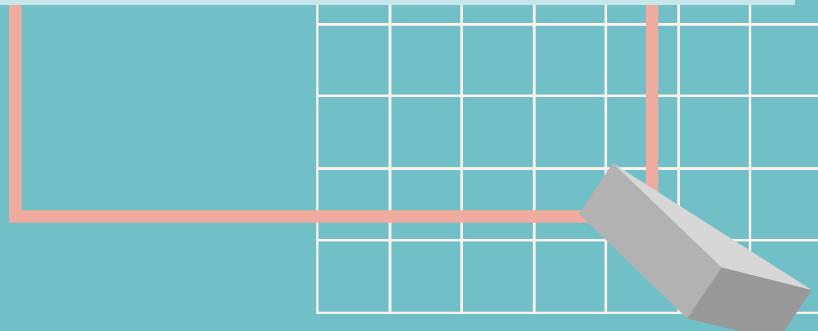


Music Ensembles Management System (MEMS)

c = create ensemble, s = set current ensemble, a = add musician, m = modify musician's instrument,
d = delete musician, se = show ensemble, sa = display all ensembles, cn = change ensemble's name,
u = undo, r = redo, l = list undo/redo, x = exit system

Please enter command [c | s | a | m | d | se | sa | cn | u | r | l | x] :- c

MEMS has 12 functions



TASKS

Your system design should conform to the Open Closed Principle and easily be extended to support new music groups

Command	Factory	Memento
Use Command Pattern to Implement all 11 command objects (except Exit System) (e.g. setEnsemble object)	Use Factory pattern or Abstract Factory Pattern to create: <ul style="list-style-type: none">○ Command objects○ Ensemble/Musician objects (e.g., JazzBandEnsemble object, OrchestraEnsemble object, Musician object)	Use Memento pattern to provide “Undo” and “Redo” functions on: <ul style="list-style-type: none">○ “modify musician’s instrument”○ “change ensemble’s name” functions”

TASKS

Assignment Report (Short)

1. Assumptions regarding the problem context
 2. Application design with **class diagram**
 3. Discussion and explanation (how) on each of the design patterns applied to the application
1. Test Plan and Test Cases
 2. Well documented Source Code

GRADING INFORMATION

Estimation of your work

For passing	For merit	For distinction
2 Patterns implemented correctly	3 Patterns implemented correctly	3 Patterns implemented correctly
Correct design with class diagram	Good design with clear class diagram	Elegant design with detailed class diagram

CHECKPOINT: WHAT YOU NEED TO ANSWER

How will your design cope with
new Musician, new Ensemble, or
new Command?

The available roles of musician depends
on the kind of Ensemble, however, unlike
updateMusicianRole() in Ensemble, there
is no createMusician() (you cannot add
it), how do your design create new role of
musician?