Entity-Component-System Design

CPSC 427 Winter 21/22 - Team Robinson (Team 13)

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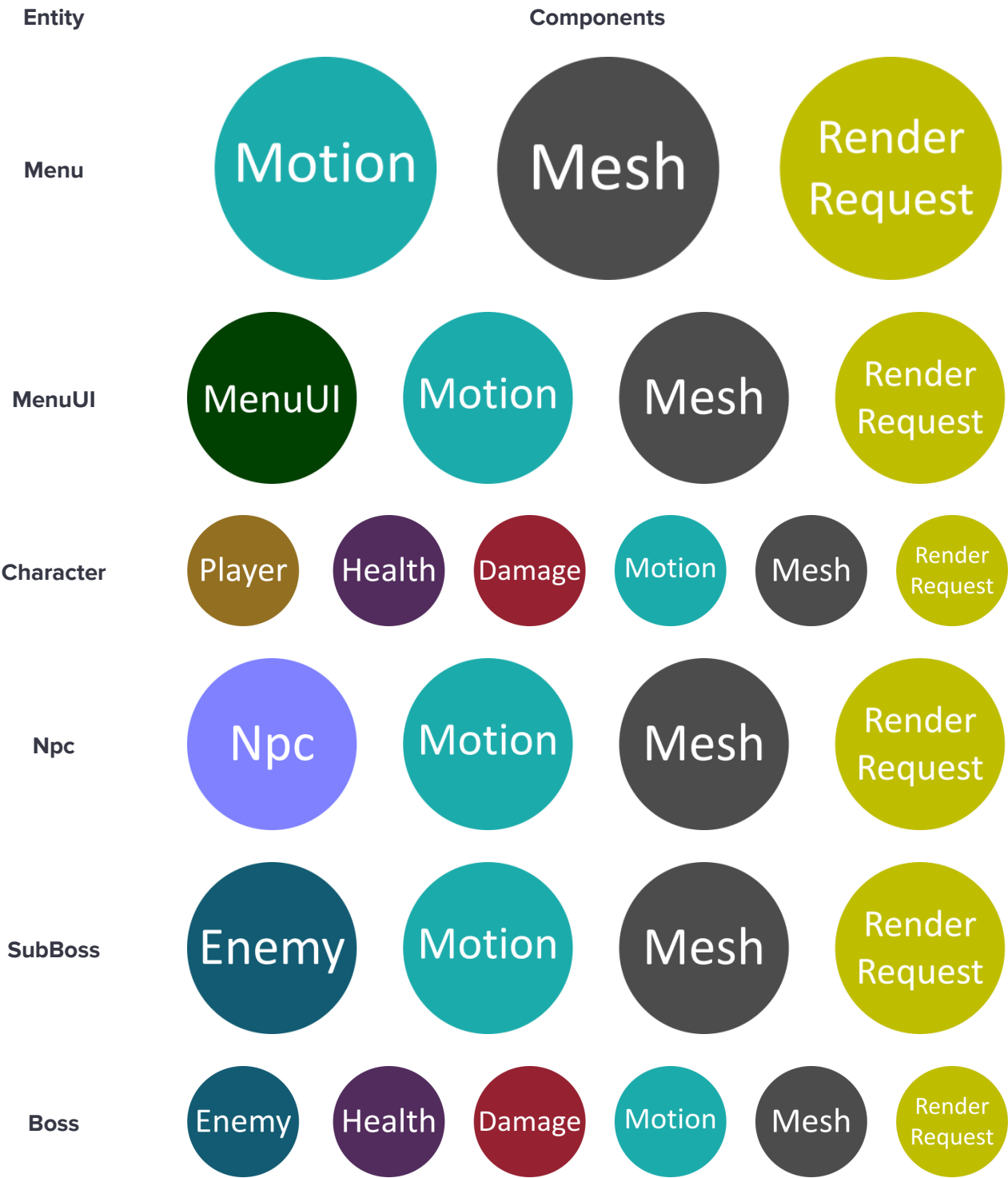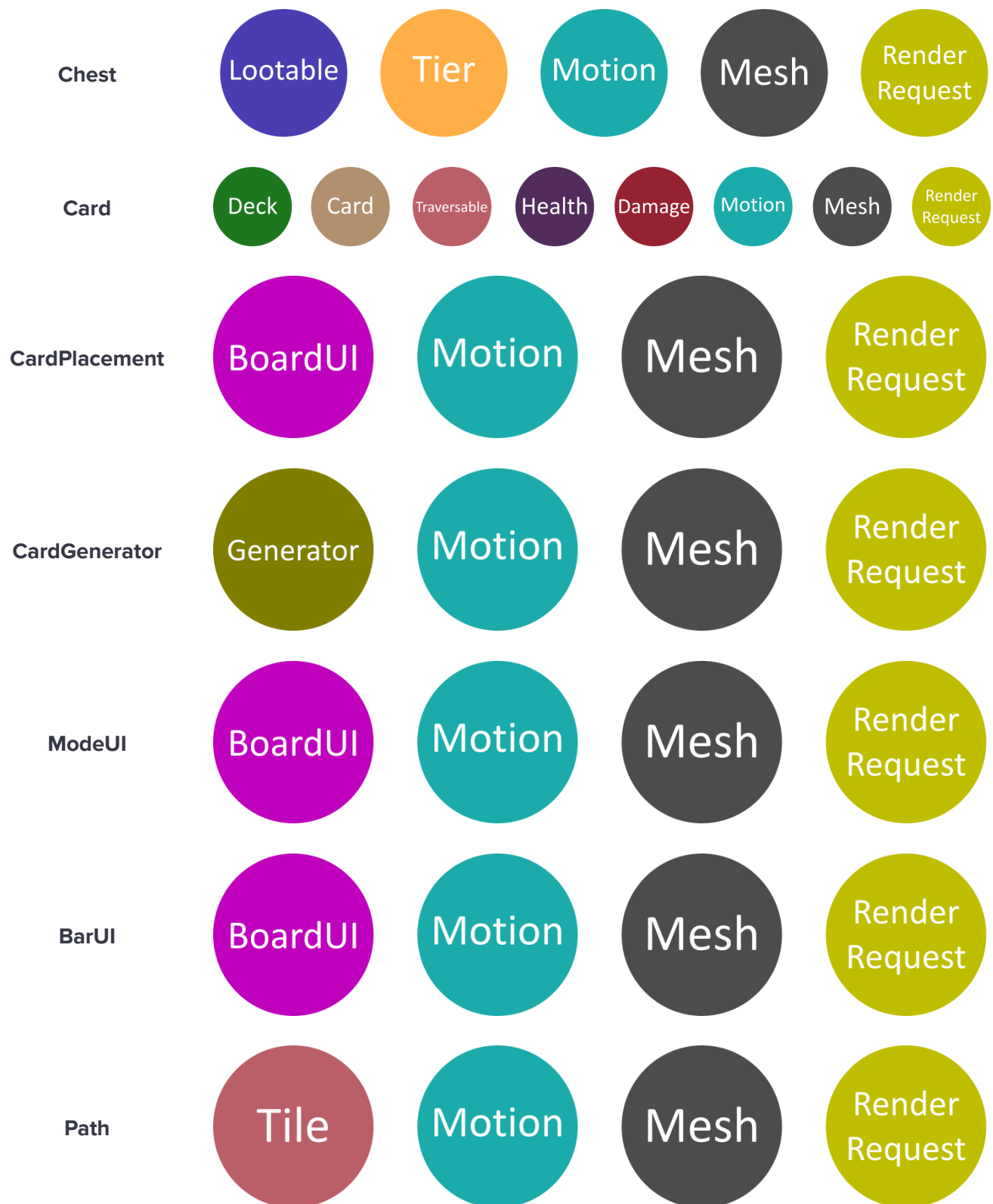Jia Ying (Erica) Yang   51803682   Jae Choi   50849141
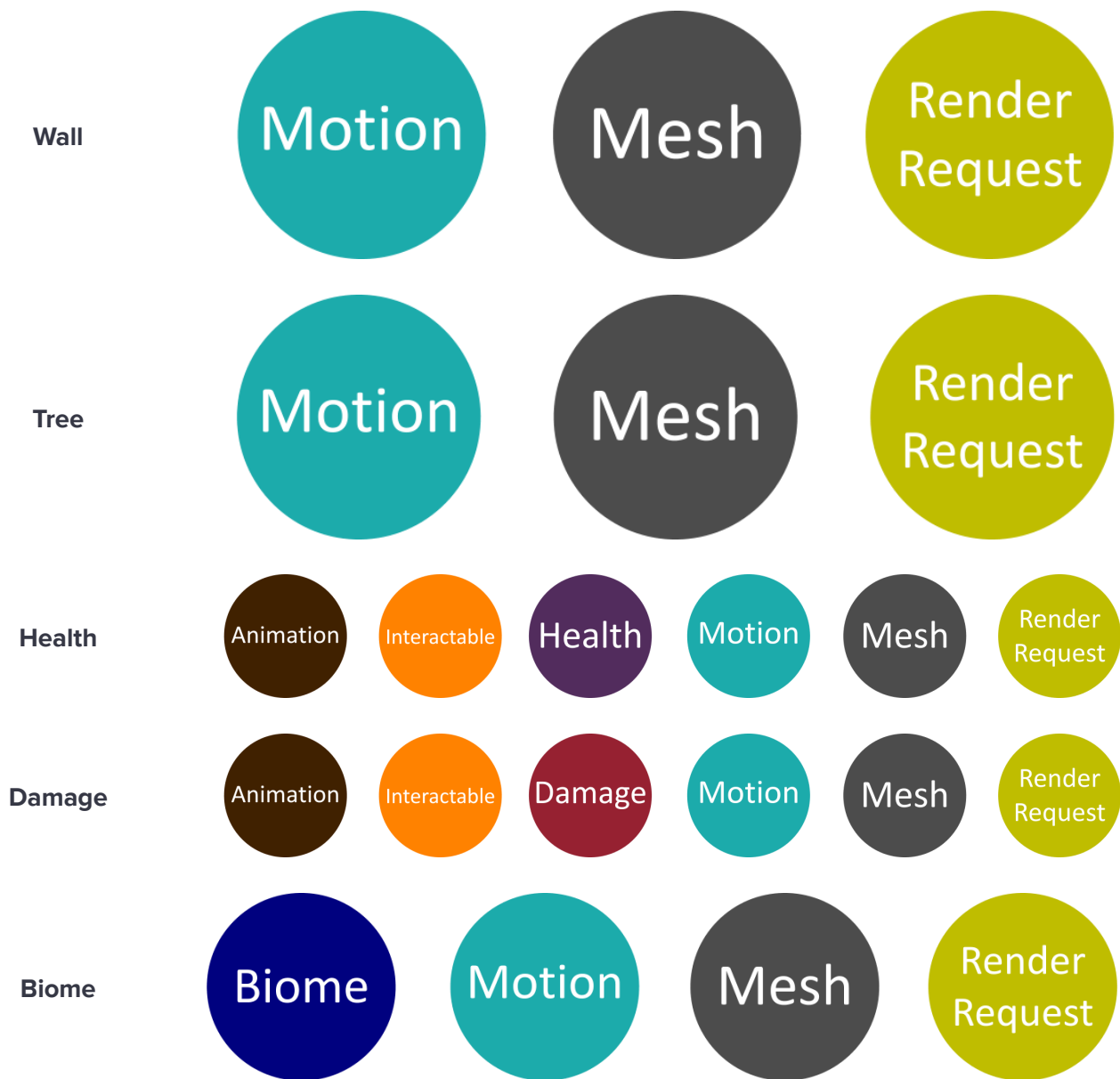
Components

Component	Description
Player	Is a character the player can control
Npc	Is a non-playable character
Enemy	Is an enemy
Biome	Is a biome
Pool	Belongs to a pool of cards
Hand	Is a card in the player's hand (during battle)
Deck	Is a card in the player's deck
Play	Is a card being played (during battle)
Generator	Is able to produce cards
BoardUI	Is part of the board's user interface (during battle)
MenuUI	Is part of the main menu's user interface
Health	Has health (or can take damage)
Damage	Does damage
Interactable	Is an interactable
Traversable	Is a tile that entities can move through
Lootable	Is lootable (i.e. a chest can be looted)
Tier	Has a tier (i.e. bronze, silver, gold)
Motion	Can move (i.e. has position, velocity, scale, etc.)
Animation	Has data for storing animation information
Mesh	Has data for storing vertex and index buffers
RenderRequest	Should display on screen

Seven new components have been added in Milestone 3, namely **Npc**, **Pool**, **Hand**, **Play**, **Generator**, **BoardUI**, and **MenuUI**. The general **Card** component has also been replaced with a **Deck** component, representing the player's inventory of cards.

Entities

Entity	Components
Menu	Motion, Mesh, Render Request
MenuUI	MenuUI, Motion, Mesh, Render Request
Character	Player, Health, Damage, Motion, Mesh, Render Request
Npc	Npc, Motion, Mesh, Render Request
SubBoss	Enemy, Motion, Mesh, Render Request
Boss	Enemy, Health, Damage, Motion, Mesh, Render Request

Chest Lootable Tier Motion Mesh Render Request

Card Deck Card Traversable Health Damage Motion Mesh Render Request

CardPlacement BoardUI Motion Mesh Render Request

CardGenerator Generator Motion Mesh Render Request

ModeUI BoardUI Motion Mesh Render Request

BarUI BoardUI Motion Mesh Render Request

Path Tile Motion Mesh Render Request

Wall   Motion   Mesh   Render Request

Tree   Motion   Mesh   Render Request

Health   Animation   Interactable   Health   Motion   Mesh   Render Request

Damage   Animation   Interactable   Damage   Motion   Mesh   Render Request

Biome   Biome   Motion   Mesh   Render Request

Eight new entities have been added in Milestone 2, namely **Menu**, **MenuUI**, **Npc**, **Boss**, **CardPlacement**, **CardGenerator**, **ModeUI**, and **BarUI**. The **Card** entity has also been updated with the changes to the components mentioned in the previous section, while the **Enemy** entity has been made a **SubBoss** entity. Two new components (i.e. **Health** and **Damage**) have also been added to the **Character** entity.