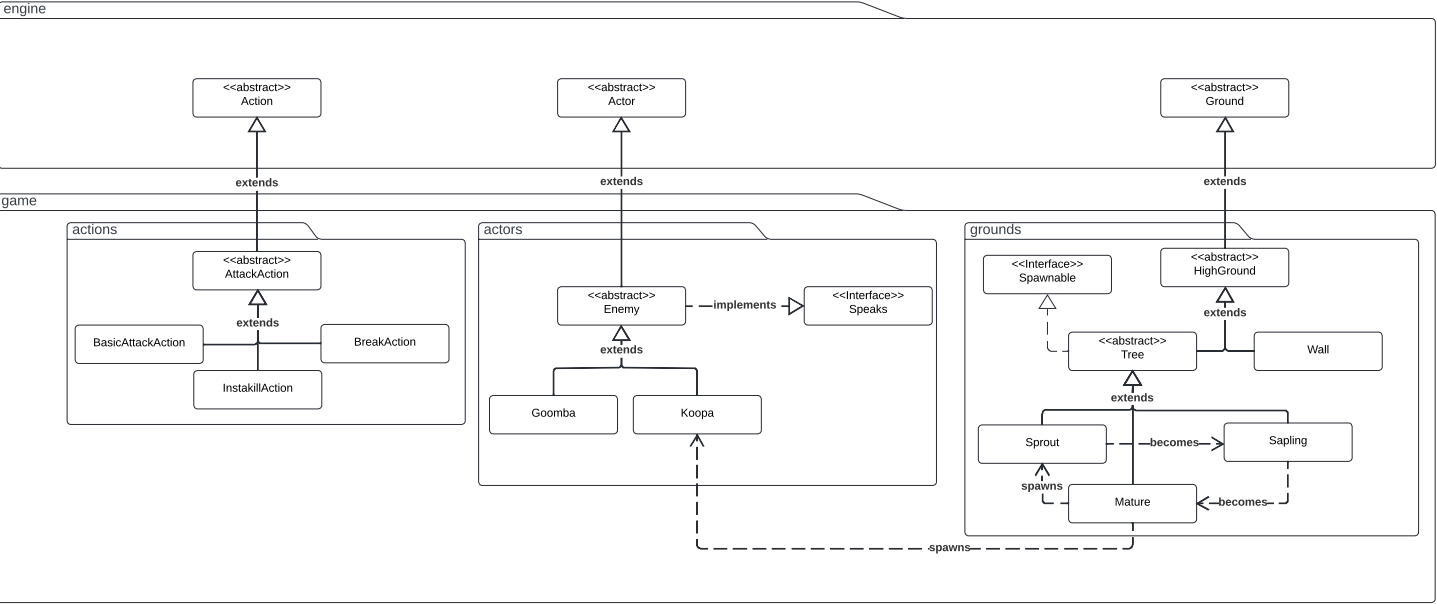
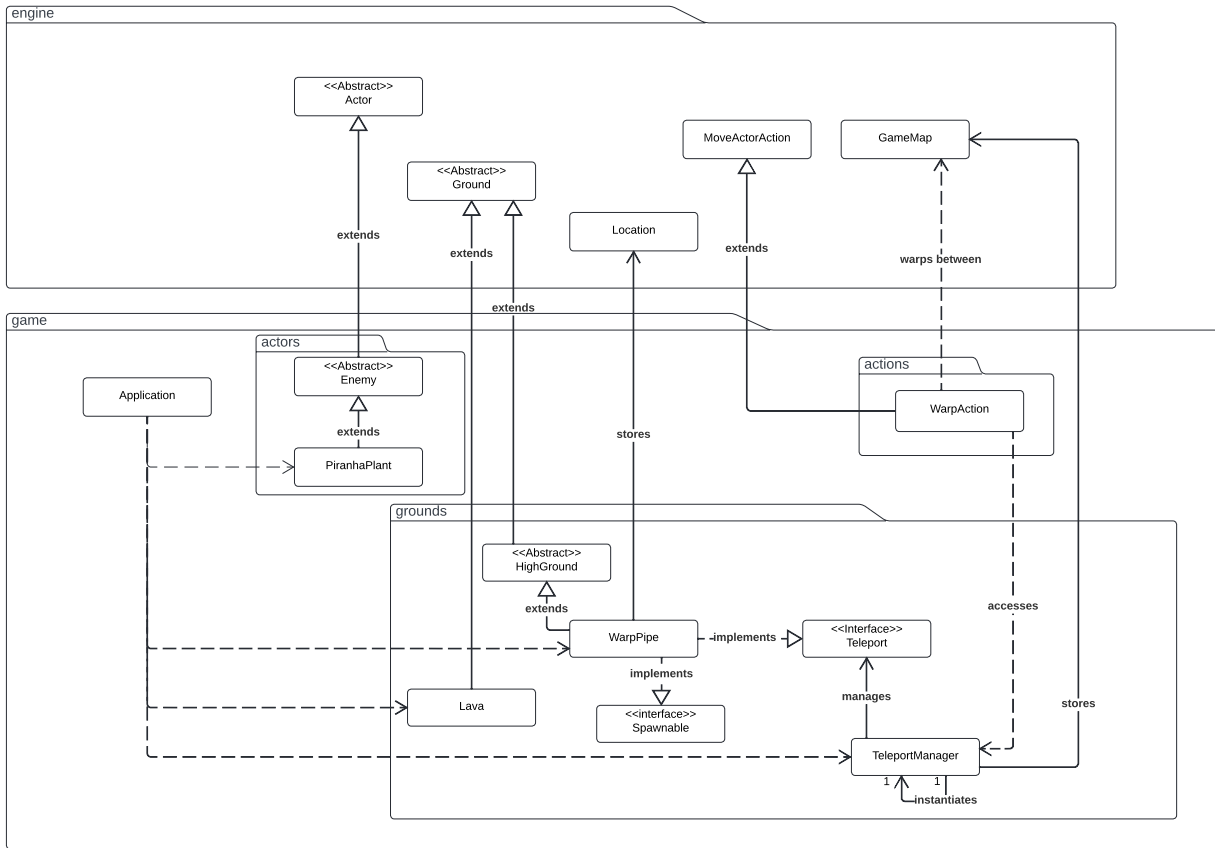
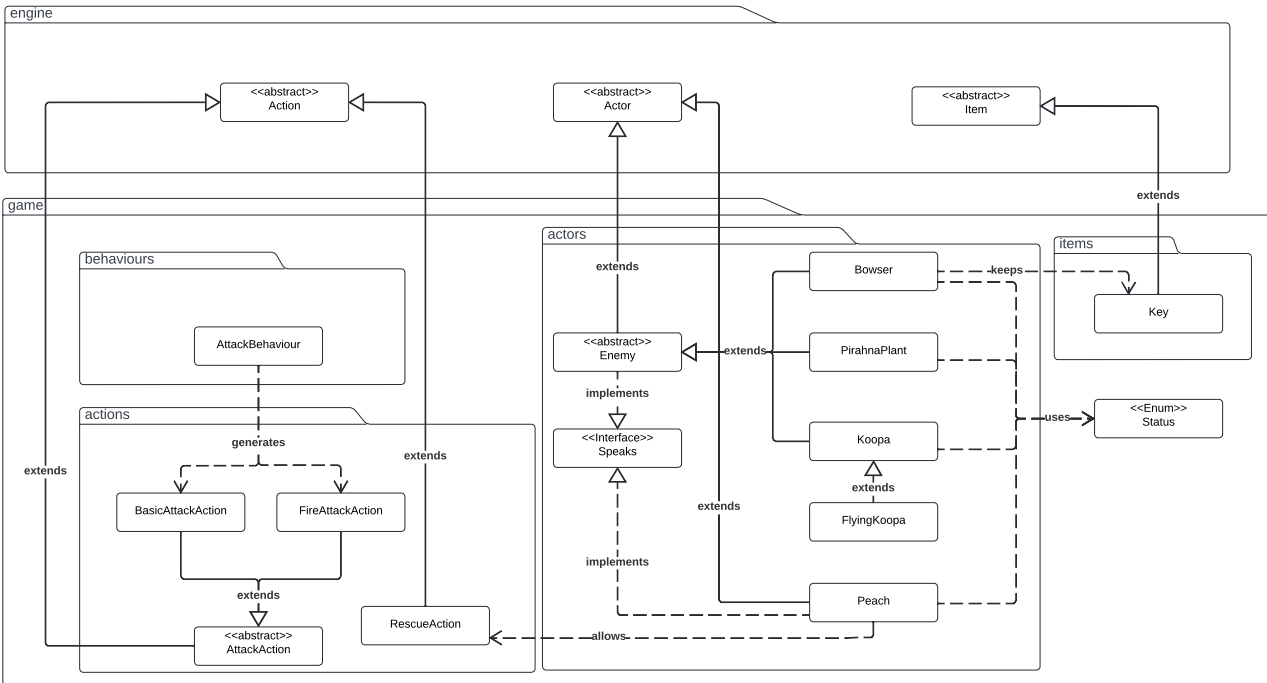


Design Changes from Assignment 2



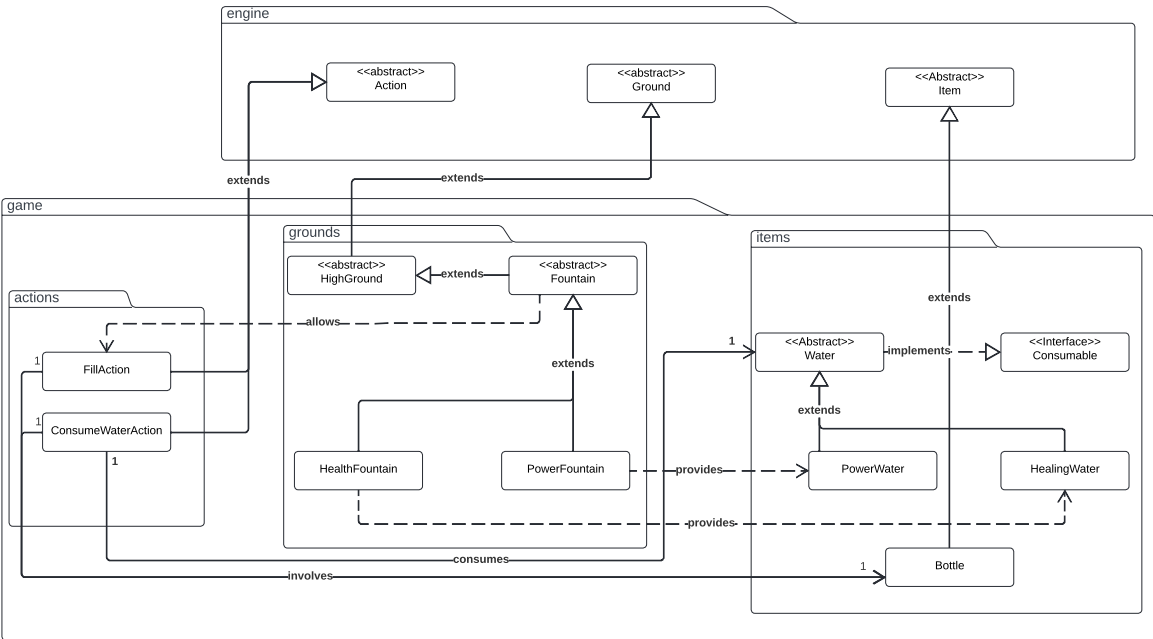


UML Diagram for Req2

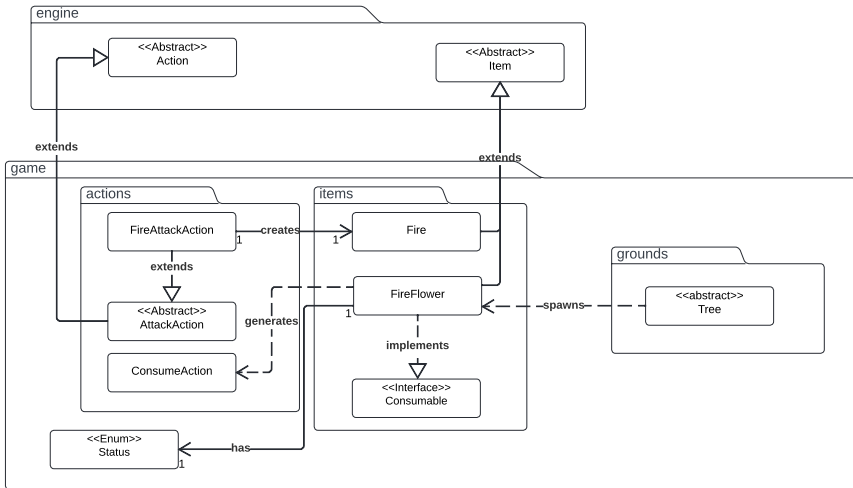


The diagram is a UML Package Diagram for Requirement 3, showing the structure of a game engine and its components. It is organized into several packages: **engine**, **game**, **grounds**, and **items**.

- engine** package:
  - Contains an abstract class **<<abstract>> Action**.
  - Contains an abstract class **<<abstract>> Ground**.
  - Contains an abstract class **<<Abstract>> Item**.
- game** package:
  - Contains a sub-package **actions** with two classes: **FillAction** and **ConsumeWaterAction**.
  - Contains a sub-package **grounds** with:
    - An abstract class **<<abstract>> HighGround**.
    - An abstract class **<<abstract>> Fountain**.
    - Concrete classes **HealthFountain** and **PowerFountain**.
  - Contains a sub-package **items** with:
    - An abstract class **<<Abstract>> Water**.
    - Concrete classes **PowerWater** and **HealingWater**.
    - A class **Bottle**.
- Relationships:**
  - Generalization (Solid line with hollow triangle):**
    - <<abstract>> Ground** is a generalization of **<<abstract>> HighGround** and **<<abstract>> Fountain**.
    - <<Abstract>> Item** is a generalization of **<<Abstract>> Water**.
    - <<Abstract>> Water** is a generalization of **PowerWater** and **HealingWater**.
    - <<abstract>> Fountain** is a generalization of **HealthFountain** and **PowerFountain**.
  - Realization (Solid line with hollow triangle):**
    - <<Interface>> Consumable** is realized by **<<Abstract>> Water**.
  - Association (Solid line):**
    - FillAction** is associated with **<<abstract>> Action** (multiplicity 1 at Action).
    - ConsumeWaterAction** is associated with **<<abstract>> Action** (multiplicity 1 at Action).
    - ConsumeWaterAction** is associated with **Bottle** (multiplicity 1 at Bottle).
    - PowerFountain** is associated with **<<Abstract>> Water** (multiplicity 1 at Water).
  - Generalization (Dashed line with hollow triangle):**
    - HealthFountain** is a generalization of **PowerFountain**.
  - Association (Dashed line):**
    - FillAction** is associated with **<<abstract>> HighGround** (labeled "allows").
    - HealthFountain** is associated with **PowerWater** (labeled "provides").
    - PowerFountain** is associated with **HealingWater** (labeled "provides").
  - Generalization (Dashed line with hollow triangle):**
    - HealthFountain** is a generalization of **PowerFountain**.
  - Association (Dashed line):**
    - HealthFountain** is associated with **PowerFountain** (labeled "consumes").
  - Association (Solid line):**
    - game** package is associated with **<<abstract>> Action** (labeled "extends").
    - game** package is associated with **<<abstract>> Ground** (labeled "extends").
    - game** package is associated with **<<Abstract>> Item** (labeled "extends").



## UML Diagram for Req4



# UML for Req 5

