Q3

a) GameCompany is writing a new expansion to a game that upgrades the existing enemy AI to allow for dynamic generation of different enemy types. An abstract base class for the AI and a concrete AI class already exists. As an ongoing commitment to enhanced game play, GameCompany intends to implement additional AI behaviours on a regular basis. The decorator pattern will be used to implement this feature.

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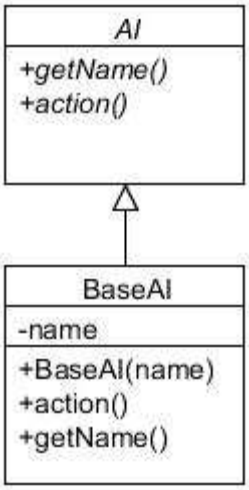

b) The following is the UML model with the application of the decorator design pattern. Elements with a white background highlights the new additions to the model while the elements with a grey background indicates the original components of the model. The ActionDecorator abstract decorator class allows the concrete decorators, such as YellDecorator, ShootDecorator and DodgeDecorator to wrap around the BaseAI class and provide additional AI behaviours.