CSE 231 Problem Set 04

# Problem 32.1: Alignment of Missile Command

Consider the following problem domain:

The 1980 game Missile Command consists of three types of entities: targets, assets, and inert objects. The targets are things that the player can shoot at, the assets are things the player attempts to protect, and inert objects are non-interactive elements designed to contribute to the look and feel of the game. Among the targets are incoming ICBM missiles, smart-bombs, bomber planes, and satellites. Each can be destroyed by counter-missiles controlled by the player. Assets include the anti-missile batteries from which the counter-missiles are fired and cities. All assets can be destroyed by missiles and smart bombs. The inert objects include the score, number of missiles left, high score, and other status messages.

Identify the level of alignment from the following class diagram:



Rationale for whether this design is **Extraneous**:

This could be considered Extraneous as the class of Statistics should not inherit from static, but instead be placed under its own inheritance.

Rationale for whether this design is **Partial**:

This could be considered partial because we are missing a construct for Battery and City. There should be a construct for ASSESTS that can be interacted with but are not mobile, btu are also still important to the look and play of the game.

Level of alignment:

The level of alignment for this problem is considered PARTIAL.

If the class diagram does not exhibit complete alignment, provide a class diagram that does:

# 



# Problem 32.2: Alignment of Pac-Man

Consider the following problem domain:

The 1980 game Pac-Man consists of a maze and several game entities: ghosts, pellets, and Pac-Man himself. The maze is a matrix of sides, each of which can be opened or closed. The ghosts are four flavors (Blinky, Pinky, Inky, and Clyde). These ghosts are in one of three modes: edible (blue), slow (when a power pellet is eaten), normal, and dead (when the ghost returns to the base). The pellets have three flavors: normal, energizers, and fruit.

Identify the level of alignment from the following class diagram:



Rationale for whether this design is **Extraneous**:

Rationale for whether this design is **Partial**:

Level of alignment:

If the class diagram does not exhibit complete alignment, provide a class diagram that does:

# Problem 32.3: Design Dig Dug

Consider the following problem domain:

The 1982 game Dig Dug consists of enemies, Dig Dug, and a playing field. There are two types of enemies: Pookas and Fygars. Both can move through tunnels, can ghost through solid ground, or can be in various stages of inflation. The ground can be dirt, a tunnel, or a rock.

Create a class diagram exhibiting complete alignment.

Justify why you think your design’s alignment is complete.

# Problem 32.4: Design Centipede

Consider the 1981 arcade game Centipede. Research how the game was played:

Provide a class diagram exhibiting complete alignment:

Justify why you think your design’s alignment is complete: