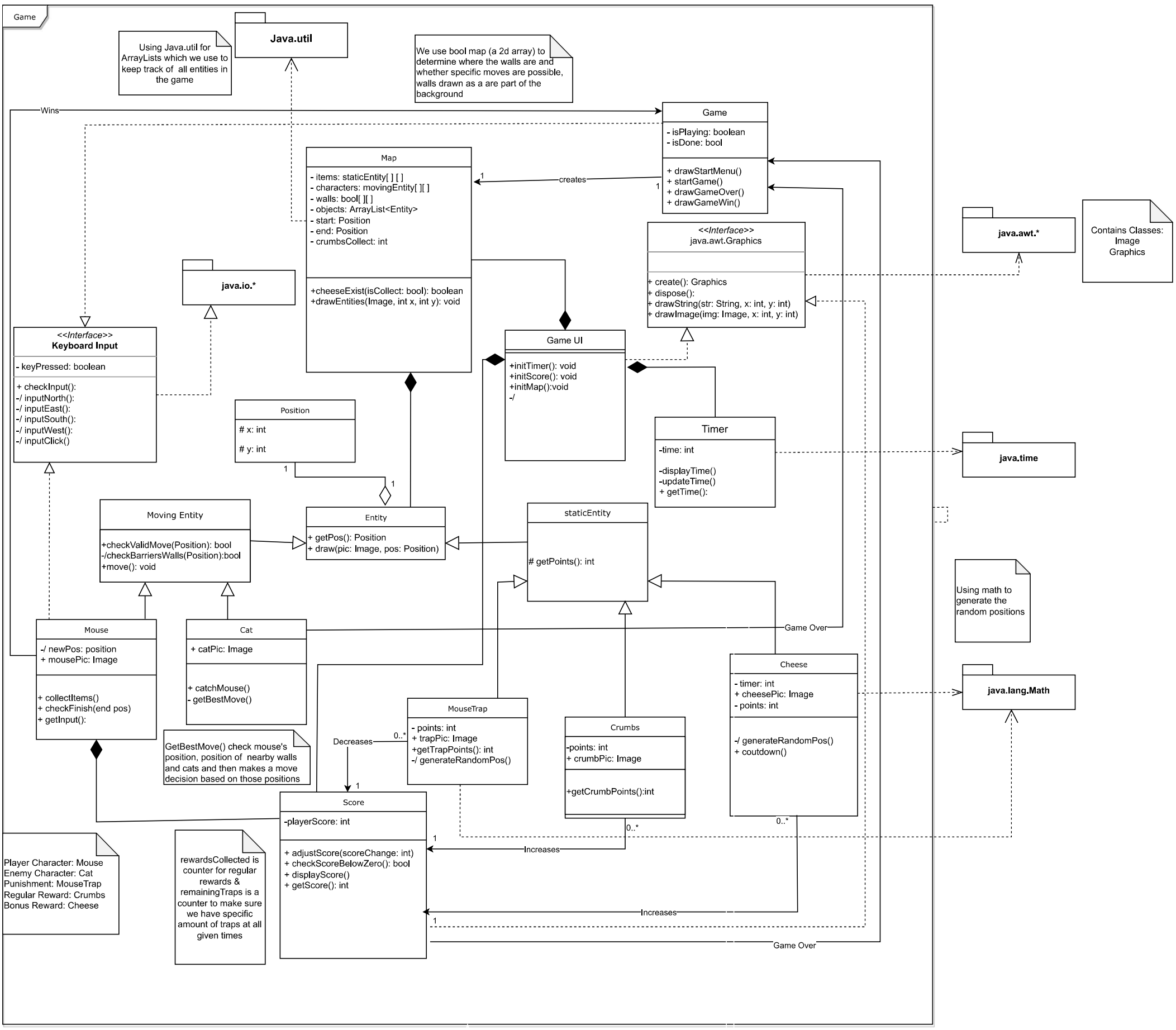
Game
Using Java.util for ArrayLists which we use to keep track of all entities in the game
Java.util
We use bool map (a 2d array) to determine where the walls are and whether specific moves are possible, walls drawn as a are part of the background
Wins
Game
- isPlaying: boolean
- isDone: bool
+ drawStartMenu()
+ startGame()
+ drawGameOver()
+ drawGameWin()
Map
- items: staticEntity[ ] [ ]
- characters: movingEntity[ ][ ]
- walls: bool[ ][ ]
- objects: ArrayList<Entity>
- start: Position
- end: Position
- crumbsCollect: int
+cheeseExist(isCollect: bool): boolean
+drawEntities(Image, int x, int y): void
creates
1
1
<<Interface>>
java.awt.Graphics
+ create(): Graphics
+ dispose():
+ drawString(str: String, x: int, y: int)
+ drawImage(img: Image, x: int, y: int)
java.awt.*
Contains Classes:
Image
Graphics
java.io.*
<<Interface>>
Keyboard Input
- keyPressed: boolean
+ checkInput():
-/ inputNorth():
-/ inputEast():
-/ inputSouth():
-/ inputWest():
-/ inputClick()
Game UI
+initTimer(): void
+initScore(): void
+initMap():void
-/
Position
x: int
y: int
1
1
Timer
-time: int
-displayTime()
-updateTime()
+ getTime():
java.time
Moving Entity
+checkValidMove(Position): bool
-/checkBarriersWalls(Position):bool
+move(): void
Entity
+ getPos(): Position
+ draw(pic: Image, pos: Position)
staticEntity
getPoints(): int
Using math to generate the random positions
Mouse
-/ newPos: position
+ mousePic: Image
+ collectItems()
+ checkFinish(end pos)
+ getInput():
Cat
+ catPic: Image
+ catchMouse()
- getBestMove()
Game Over
Cheese
- timer: int
+ cheesePic: Image
- points: int
-/ generateRandomPos()
+ coutdown()
java.lang.Math
MouseTrap
- points: int
+ trapPic: Image
+getTrapPoints(): int
-/ generateRandomPos()
Decreases
0..*
1
Crumbs
-points: int
+ crumbPic: Image
+getCrumbPoints():int
0..*
0..*
GetBestMove() check mouse's position, position of nearby walls and cats and then makes a move decision based on those positions
Score
-playerScore: int
+ adjustScore(scoreChange: int)
+ checkScoreBelowZero(): bool
+ displayScore()
+ getScore(): int
1
Increases
Increases
1
Game Over
Player Character: Mouse
Enemy Character: Cat
Punishment: MouseTrap
Regular Reward: Crumbs
Bonus Reward: Cheese
rewardsCollected is counter for regular rewards & remainingTraps is a counter to make sure we have specific amount of traps at all given times