The EverCraft Kata

In this exercise, you will build out a domain model for a MMORPG called EverCraft for the company Blizzards of the Coast. Just follow the requirements below, pairing and test driving your code of course, and have fun.

This document and several sample projects can be found on-line at https://github.com/walterg2/EverCraft-Kata

May all your rolls be 20s.

Guy Royse (@guyroyse) and George Walters II (@walterg2)

Requirements

Iteration 1 - Core

This iteration covers core functionality for leveling, combat, and character attributes.

Feature: Create a Character

As a character I want to have a name so that I can be distinguished from other characters

- can get and set Name

Feature: Alignment

As a character I want to have an alignment so that I have something to guide my actions

- can get and set alignment
- alignments are Good, Evil, and Neutral

Feature: Armor Class & Hit Points

As a combatant I want to have an armor class and hit points so that I can resist attacks from my enemies

- has an Armor Class that defaults to 10
- has 5 Hit Points by default

Feature: Character Can Attack

As a combatant I want to be able to attack other combatants so that I can survive to fight another day

- roll a 20 sided die (don't code the die)
- roll must meet or beat opponents armor class to hit

Feature: Character Can Be Damaged

As an attacker I want to be able to damage my enemies so that they will die and I will live

- If attack is successful, other character takes 1 point of damage when hit
- If a roll is a natural 20 then a critical hit is dealt and the damage is doubled
- when hit points are 0 or less, the character is dead

Feature: Character Has Abilities Scores

As a character I want to have several abilities so that I am not identical to other characters except in name

- Abilities are Strength, Dexterity, Constitution, Wisdom, Intelligence, Charisma
- Abilities range from 1 to 20 and default to 10
- Abilities have modifiers according to the following table

```
        +------+------+------+------+------+------+------+------+------+------+
Score   |   1  |   2  |   3  |   4  |   5  |   6  |   7  |   8  |   9  |  10  |
Modifier|  -5  |  -4  |  -4  |  -3  |  -3  |  -2  |  -2  |  -1  |  -1  |   0  |
        +------+------+------+------+------+------+------+------+------+------+
Score   |  11  |  12  |  13  |  14  |  15  |  16  |  17  |  18  |  19  |  20  |
Modifier|   0  |  +1  |  +1  |  +2  |  +2  |  +3  |  +3  |  +4  |  +4  |  +5  |
        +------+------+------+------+------+------+------+------+------+------+
```

Feature: Character Ability Modifiers Modify Attributes

As a character I want to apply my ability modifiers improve my capabilities in combat so that I can vanquish my enemy with extreme prejudice

- add Strength modifier to:
  - attack roll and damage dealt
  - double Strength modifier on critical hits
  - minimum damage is always 1 (even on a critical hit)
- add Dexterity modifier to armor class
- add Constitution modifier to hit points (always at least 1 hit point)

Feature: A Character can gain experience when attacking

As a character I want to accumulate experience points when I attack my enemies so that I can earn bragging rights at the tavern

- When a successful attack occurs, the character gains 10 experience points

Feature: A Character Can Level

As a character I want my experience points to increase my level and combat capabilities so that I can bring vengeance to my foes

- Level defaults to 1
- After 1000 experience points, the character gains a level
    - 0 xp -> 1st Level
    - 1000 xp -> 2nd Level
    - 2000 xp -> 3rd Level
    - etc.
- For each level:
    - hit points increase by 5 plus Con modifier
    - 1 is added to attack roll for every even level achieved

Iteration 2 - Classes

Classes that a character can have.

Feature: Characters Have Classes

As a player I want a character to have a class that customizes its capabilities so that I can play more interesting characters

Ideas

- changes in hit points
- changes in attack and damage
- increased critical range or damage
- bonuses/penalties versus other classes
- special abilities

Samples

As a player I want to play a fighter so that I can kick ass and take names

- attacks roll is increased by 1 for every level instead of every other level
- has 10 hit points per level instead of 5

As a player I want to play a rogue so that I can defeat my enemies with finesse

- does triple damage on critical hits
- ignores an opponents Dexterity modifier (if positive) to Armor Class when attacking
- adds Dexterity modifier to attacks instead of Strength

As a player I want to play a war monk so that I can enjoy being an Asian archetype in a Medieval European setting

- has 6 hit point per level instead of 5
- does 3 points of damage instead of 1 when successfully attacking
- adds Wisdom modifier (if positive) to Armor Class in addition to Dexterity
- attack roll is increased by 1 every 2nd and 3rd level

As a player I want to play a paladin so that I can smite evil, write wrongs, and be a self-righteous jerk

- has 8 hit points per level instead of 5
- +2 to attack and damage when attacking evil characters
- does triple damage when attacking an evil character
- attacks roll is increased by 1 for every level instead of every other level

Iteration 3 - Races

Races that a character can be.

Feature: Characters Have Races

As a player I want to play a Human so that I can be boring and unoriginal

- all characters default to Human

As a player I want a character to have races other than Human that customize its capabilities so that I can play more interesting characters and wont be boring and unoriginal

Ideas

- changes in abilities
- increased critical range or damage
- bonuses/penalties versus other races
- special abilities

Samples

As a player I want to play an Orc so that I can be crude, drunk, and stupid

- +2 to Strength Modifier, –1 to Intelligence, Wisdom, and Charisma Modifiers
- +2 to Armor Class due to thick hide

As a player I want to play a Dwarf so that I can drink more than the orc

- +1 to Constitution Modifier, –1 to Charisma Modifier
- doubles Constitution Modifier when adding to hit points per level (if positive)
- +2 when attacking orcs (Dwarves hate Orcs)

As a player I want to play an Elf so that I can drink wine and snub my nose at the crude dwarf and orc

- +1 to Dexterity Modifier, –1 to Constitution Modifier
- does adds 1 to critical range for critical hits (20 -> 19–20, 19–20 -> 18–20)
- +2 to Armor Class when being attacked by orcs

As a player I want to play a Halfling so that I can steal from the other drunk characters

- +1 to Dexterity Modifier, –1 to Strength Modifier
- +2 to Armor Class when being attacked by non Halfling (they are small and hard to hit)

Iteration 4 - Weapons, Armor & Items

Items that enhance a characters capabilities.

Feature: Weapons

As a character I want to be able to wield a single weapon so that I can achieve victory through superior firepower

- character can wield only one weapon

Ideas

- basic weapons that improve damage (dagger)
- basic weapons that improve to attacks (+1 sword)
- magic weapons with special properties (knife of ogre slaying)
- weapons that certain classes or races can or cannot wield

Samples

As a character I want to be able to wield a longsword so that I can look cool

- does 5 points of damage

As a character I want to be able to wield a +2 waraxe that so that I can *be* cool

- does 6 points of damage
- +2 to attack
- +2 to damage
- triple damage on a critical (quadruple for a Rogue)

As an elf I want to be able to wield a elven longsword that so I can stick it to that orc with the waraxe

- does 5 points of damage
- +1 to attack and damage
- +2 to attack and damage when wielded by an elf *or* against an orc
- +5 to attack and damage when wielded by an elf *and* against orc

As a monk I want nun chucks that work with my martial arts so that I can kick ass like Chuck Norris

- does 6 points of damage
- when used by a non-monk there is a –4 penalty to attack

Feature: Armor

As a character I want to be able to don armor and shield so that I can protect myself from attack

- character can only don one shield and wear one suit of armor

Ideas

- basic armor that improves armor class (plate)
- magic armor that has special properties
- armor and shields that are or are not usable by certain races or classes

Samples

As a character I want to the be able to wear leather armor so that I can soften attacks against me

- +2 to Armor Class

As a fighter I want to be able to wear plate armor so that I can ignore the blows of my enemies

- +8 to Armor Class
- can only be worn by fighters, dwarves, of dwarven fighters

As a character I want to the be able to wear magical leather armor of damage reduction so that I can soften attacks against me

- +2 to Armor Class
- –2 to all damage received

As an elf I want to be able to wear elven chain mail so that I can fit in with all the other elves

- +5 to Armor Class
- +8 to Armor Class if worn by an elf
- +1 to attack if worn by an elf

Feature: Items

As a character I want to be able to have items that enhance my capabilities so that I can be more bad-ass

- can carry multiple items

Ideas

- items that improve combat with types of weapons
- items that improve stats against certain types of critters
- items that improve abilities

Samples

As a character I want to be able to wear a ring of protection so that I can be protected from attack

- adds +2 to armor class

As a character I want to be able to war a belt of giant strength so that I can be even stronger in combat

- add +4 to Strength Score

Bonus Iteration - Battle Grid

Build your own features here. Multiple characters can be on a grid-based map. Each square on the map had terrain that impacts the occupant or opponents attacking into it. Characters can move and weapons have ranges.