Game Plan
Brandon, Hank, Phil & Ryan
11-10-2011

Group Inventory
Brandon:
OpenGL, AI, C++, Javascript – Good at clean design & networking

Hank:
Photoshop, Autodesk 3Ds Max, WebGL, Javascript – Good at stories & time management

Phil:
C++, WebGL, Javascript – Good at mechanics & programming

Ryan:
OpenGL, C++, Javascript – Good at level design

Tools Choices
Language: C++; Javascript

Graphics (2D): Photoshop/Fireworks

Graphics (3D): 3Ds Max

Shaders: OpenGL/WebGL

Source Control: Tortoise/GIT/Subversion

Text Editors: Vim, Notepad++, NetBeans

Division of Labor
Brandon:
Data structure, AI – team 1: macro strategy game

Hank:
Stories, Making 2D & 3D objects – team 2: micro action game

Phil:
Menus, AI, Shaders – team 2: micro action game

Ryan:
Shaders, Level design – team 1: marco strategy game

Milestones/Creation schedule:
Week 1 (11/7 – 11/12): game concepts
- Find appropriate libraries to work with.

- Build more detailed schedule; set up deadlines & backup plans.

Week 2 (11/13 – 11/19): data structure and a working menu
- First, we should build the galaxy data structures and other general data structures that will hold basic things. Make sure to be able to scale as we need. If we have time to increase functionality, we can then easily call on things that we need.
- Get a working menu and other administrative things working.

Week 3 (11/20 – 11/26): global maps and mini-game(s)
- Work on getting a basic mini-game going and translating from global stats.

Week 4 (11/27 – 12/3): art
- Begin adding artistic touches more.

Week 5 (12/4 – 12/10): revision
- Balance & Add sound.

Week 6 (12/11 – 12/14): presentation
- Polish

Risks

What are the biggest unknowns or risks facing the project that jeopardize its chances of success?
1) **Fail to meet deadlines;**
2) **Face unsolvable technical problems;**
3) **Lose data due to bad source control.**

Appendixes

-Games to look to as references:

a) Ego raptor video game critiques on Megaman X.
b) Monster slayer
c) Master of Orion
d) Warlight on Kongregate
e) Star Wars: Battlefront

-Initial concerns before coding:

- Similar to Risk with the overall design, but when armies meet there is a mini-game that the player can influence.
- We are going to have to watch out for overpowered AI and major balancing issues. With the introduction with different races, things could get out of control pretty quickly.
- We need to be careful because we are essentially building two games in one.

- Using the HUD, we can adjust which verbs are available to the player at what time. If we only want the player to be able to move, then only have the ability to move, but when we want the player to be able to attack add the function to the HUD.
- This could even be implemented through the upgrade menu. The player could upgrade the weapons to be able to attack in whatever terrain that we need. Something along these lines could solve the tutorial problem.

-Potential gameplay elements:
- ■Possible planet stats:
  - Population limit (based on planet size)
  - Resources (could have multiple types)
  - Habitability
  - Danger (the difficulty in obtaining the planet and holding it, like Venus with harsh conditions)
- ■Movement:
  - Could depend on the technology of the ship. Ships with upgraded engines could go different routes or go further on the same routes.
- ■Placing a base between different planets allow for new movement paths.

-Object Oriented Layout:
- Full Game: It's going to be a 2-D game, possibly with 3-D elements on things, but that is only if we have the time to implement it.
  - ○ Galaxy
    - ■Planets
    - ■Ships
- Units:
  - ○ Soldiers
  - ○ Bombs
  - ○ Spy
  - ○ Commando
  - ○ Diplomat
- Ships
  - ○ Capital ships:
    - ■Contain all facilities needed to provide structures on other planets.
  - ○ Transport
    - ■APC
      - Small carrier for small insertions.
    - ■Stealth carrier
      - Tiny ship able to carry only a few units.
    - ■Bulk Carrier
      - Carries massive armies and supplies. Bonuses could be given to assaults and defense because of some sacrifices to carrying ability.
    - ■Tanker
      - Massive storage space, more than bulk carrier. Defenseless.
    - ■Defense liner:
      - Large ship that carries massive amounts of units with little defense.
  - ○ Assault

- ■Fighter
  - Can be deployed from large ships.
- ■Cruiser
  - Large ship with medium damage and medium attack
- ■Gun boat
  - Maneuverable ship with the ability to deal moderate damage.
- ■Carrier
  - Main purpose to carry fighters. Large ship with heavy attack and heavy defense. Possibly the ability to create ships on the run.
- ■Frigate
  - Heavy attack medium size ship. Meant to escort larger ships and transports.
- ■Destroyer
  - Large ship with very heavy attack. Meant to take down other large ships and installations.
- ■Battleship
  - Virtually the same as a destroyer, but better against fleets of fighters and medium sized ships. Very tough otherwise.
- ■Titan
  - Extremely large ship. Able to take down virtually all other ships. Very costly, very large, and very powerful.
  - ○ Scout
    - ■Probe
      - Destination only unit. Cheap, replaceable, and fast.
    - ■Scout
      - Basically a probe but can be redirected
- Planets:
  - ○ Contain the ability to hold multiple armies.
    - ■When occupied, armies incur damage from the defense erected for the army and the units that are currently occupying the planet. Stealth drops can bypass the defense with a successful check.
  - ○ Have a size modifier determining the number of units that can populate the surface.
    - ■This doesn't have any effect on orbiting ships, but it could have an effect on space battles.
  - ○ Can have indigenous populations with various degrees:
    - ■No population: No action needs to be taken, less able to hold populations.
    - ■Early life: No action.
    - ■Established: Basic defensive action may be necessary.
    - ■Early Development: Basic defensive action or diplomacy.
    - ■Full Development: Moderate defensive action or diplomacy.
    - ■Advanced: Heavy defensive action or diplomacy.
    - ■All others will be players in the game.
  - ○ Planets will also be categorized based on terrain:
    - ■Habitable: will often times have life and be easy to create colonies.
    - ■Uninhabitable: will not easily support life, must have basic colonies.
    - ■Hazard, hostile: environment needs more advanced measures to be able to support a population.
    - ■Dangerous: requires advanced research into colonization to sustain life.

- ○ Have multiple resources which allow for the research and development of more advanced technology.
- ○ Has a status:
  - ■ Conquered
  - ■ Neutral
  - ■ Contested
  - ■ Diplomatic
- ● Solar System
  - ○ Holds some number of planets.
  - ○ When all planets are occupied by the same empire, the empire gains a defense bonus as well as a resource bonus.
  - ○ Travel within the solar system is virtually free or takes only one turn.
- ● Galaxy:
  - ○ Traveling between solar systems can take multiple turns.
  - ○ Contains multiple solar systems.
  - ○ Contains free floating ships.
- ● Empires
  - ○ Factions with colors (subject to change):
    - ■ Germans: gray, black, brown
    - ■ American: red, white, blue, green?, brown?, but probably white for the most part
    - ■ Russians: brown, red, white, yellow
    - ■ French: red, white, blue, but mostly a blue color
    - ■ British: red, white, blue, but mostly a red color
    - ■ Japanese: red and white
    - ■ Chinese: red and yellow, maybe a brown color too?
    - ■ Italian: green, white, red
  - ○ Each faction could have a different evolution type:
    - ■ Squid: ink
    - ■ Octopus: tentacle
    - ■ Crustacean: shell
    - ■ Certain spiders: augmented vision able to detect ships better
  - ○ Each faction is going to have technology dependent on characteristics from WWII.
    - ■ Germans have strong frontal assault characteristics.
    - ■ Tanks and large powerful vehicles will be popular with some of the countries with Russia having a bonus to vehicle defense (similar to the plating they had on the tanks during the time).
    - ■ Japanese have increased bravery.
    - ■ China and Russia have bonuses to population.
    - ■ Italy has bonus to engineering, probably Germany too.
    - ■ America will have bonuses to manufacturing.
  - ○ Empires are going to have different political systems:
    - ■ Democracy
      - ● Must have embassies on all planets, but loses power of the planet with the loss of the embassy.
    - ■ Dictatorship
      - ● All power is located on the home planet. If the player is the dictator, then the loss of the capital ship means a loss to the player.
    - ■ Communism

- All technology is spread throughout the fleet quickly. Specialization gives bonuses to production. This idea isn't completely thoughtout, but it's something that we can work from.
  - Anarchy
    - There are no leaders and there is no direct control of any part of the group. The anarchist empires have a weakness to infiltration and tactile attacks, but can spread quickly.
  - Monarch
    - These would be very similar to the dictatorship, but with a more rigid ideologies and different bonuses. It's also a work in progress.
- Game States:
  - Win:
    - Conquer 80% or so of the planets. This needs to be defined better, but for now I'm going to say having the greatest number of units occupying the planet.
    - All others fail.
  - Lose
    - Loose capital ship
    - Loose all leaders (depends on the political system).
    - Enemy conquers 80% of galaxy.
  - Title menus:
    - Create set up requirements for the game or load a previous game.
  - Pause:
    - Simply pause the game, maybe we could have them be able to change the difficulty here.
  - Galactic Gameplay:
    - Where the player moves the armies and sets up moves for the commit.
  - Capital ship confrontation:
    - Incur bonuses for the player during some skirmish with the opponent.