Project Assignments

Alexis

- Enemies (koopa, goomba, etc)
    - The enemies AI is simple and characteristics are inheritable among each different enemies. Once an enemy comes into frame, they begin to move from right to left. The enemy kills Mario when their rectangle right or left collides with Mario's right or left. If the enemy is flying, the enemy probably kills Mario if their rectangle bottom touches Mario's top. The enemy dies when their rectangle top touches Mario's rectangle bottom. If an enemy collides with an object (i.e. pipe), then they change x direction. If an enemy is no longer colliding with the ground, they fall in a diagonal manner. If they hit a wall falling down, they change their x direction. When a goomba is stomped on, they can be squished and points are flashed on screen depending how many enemies are killed within a time limit. On the other hand, when a koopa is stomped on they turn into a shell. If left in a shell, koopa turns back into koopa pops legs out at 10 seconds and continues going left to right in original form after 5 more seconds. If an collides with another enemy they change their x direction. Mario stomping on an enemy should send mario jumping back up, like a spring.
- Point System
    - Point system is independent for each type of enemies.
        - 100 Points are received for stomping on a koopa.
        - 100 Points are received for hitting a koopa shell.
        - 100 Points are received for stomping on a goomba.
        - 100, 400 Points are received for killing two goombas at same time.
        - 100, 200, 400, 500, 1000 points given for killing a pack of goombas individually.
        - 100 Points are received when killing an enemy while in star power-up.
    - Point system for items.
        - 1000 points are received for mushroom.
        - 1000 points are received for flower.
        - 0 points are received for coins.
    - Point system for end.
        - 1000 points are received for getting to bottom of flagpole.
        - 5000 points are received for getting to top of flagpole.

Cristopher

- Level layout
    - Level will be built from a file which describes the basic layout of the level. This file can be parsed on load and then the corresponding items/blocks can be rendered. From there, all the pieces of the level can be represented as sprites which can be collided with
- Blocks
    - There can be different types of block objects, each with certain properties. Some can be broken, others cannot, and others still will contain items. When an item leaves a block, then it travels to the right of the screen until it falls off screen or it is picked up by mario. Some blocks are invisible, until they are collided with the top of mario. At which point, they may release an item and reveal a sprite.
        - Basic blocks can be simple objects that need dimensions and image(s)
        - Other types of blocks can inherit from the basic block object, adding special behavior, such as the release of items or interaction upon specific collisions
        - Hitting a brick block can send mushroom different direction depending which half of the brick block its on. For example, if mushroom is going right and enters left top of brick block, it jumps and heads different direction. If it's on the right side, it only jumps.
- Mario Power-up modes (fireball, invincible, large)
    - Entering large state or fireball can add a 'hit point' to Mario, allowing him to be hit once without dying. When in 'large' state Mario has a larger image and hitbox, and can take a single hit before being returned to his 'normal' state. In fireball state, two fireballs can be on screen at once at any given time. Fireballs fall at a specific trajectory and are absorbed if they collide with any side of a surface other than the top. When in invincible mode, Mario can collide with any enemy to kill them, and is unharmed unless falling below the map.

Joseph

- Mario basic (sprite, movement, running jumping,crouching, etc.)
    - Mario has a speed/velocity which can increase to a maximum over time. Mario can crouch, which not only changes his sprite image, but his hitbox rectangle. If the player changes direction in the middle of movement, the image changes to a 'skid' image and speed decreases gradually until Mario stops and begins moving in the opposite direction. When Mario jumps, his trajectory is different based on his momentum/direction. In addition, Mario can change direction in mid-air, allowing some control after jumping.

        - All movements have their own respective animation cycles which are displayed as long as the action is being undergone (e.g. running, jumping, etc.)
- Menu Options (high score tracking, start game, etc.)
    - Menu has an interface which allows the user to start the game using their keyboard to select the start option. Further, they can also select an option to display a high score screen, for viewing past high scores, and finally there is the option to exit the game, which closes the application entirely. High scores can be recorded by dumping scores to a file, and then reading them from that file when necessary, for display/update.