Test ID	Date:	Tested By:	System:	Environment:
1	04/26/2020	Marcus Kielman	MAC OS Catalina	Mac Terminal
Objective:	**Category:**	**Version:**	**Test Type:**	
Test General Functionality of Main Gameplay	Main Gameplay	1.0	Manual Beta Test	

Condition to Test:

Tests conducted on terminal in MAC OS Catalina.
Function groups tested individually for functionality, and then tested with overall integration into gameplay

Data/Steps to Perform:

1. Main Gameplay
   i.   Navigation using getInput() and parseAndExecute()

Expected Results:

1. Main Gameplay
   i.   Gameplay introduction should be displayed during initial gameplay
   ii.   Player should be able to be informed to input correct message when incorrect message entered
   iii.   "q" command should exit game and end game program
   iv.   "c" command should run levels consecutively through player badge, and switch from General's monologue to challenge using "gamestart" flag. Print an UNKNOWN BADGE ID when BADGE ID is not in the range [0-7]
   v.   "help" command should display explanation for command functionality
   vi.   "status" command should display General Buckingham artwork, and player Health and latest Badge achieved.

Actual Results:

 All commands ran correct and expected functionality.
Introduction only displayed when program first run.

Status:

O Not Tested

X Pass

O Fail

Test ID	Date:	Tested By:	System:	Environment:
2	04/27/2020	Marcus Kielman	MAC OS Catalina	Mac Terminal
Objective:		**Category:**	**Version:**	**Test Type:**
Test General Functionality of level 1 Gameplay		Level Gameplay	1.0	Manual Beta Test

Condition to Test:

Tests conducted on terminal in MAC OS Catalina.

Function groups tested individually for functionality, and then tested with overall integration into gameplay

Data/Steps to Perform:

1. Level Gameplay
    i.   Navigation through General Buckingham's monologue
    ii. Navigation through level challenges
    iii. Navigation between Main Gameplay and specific level gameplay
2. Level 1 Gameplay
    i.   Navigation through level 1 gameplay

Expected Results:

1. Level Gameplay
    i.   Player should be able to input name, and place in playerHealth
    ii. "c" command should switch from main gameplay to level gameplay after General's monologue
    iii. Level should switch to Main gameplay upon completion
    iv. When playerHealth is <= 0, display GAME OVER sequence and prompt to retry. When "Y" inputted, level challenge starts over, otherwise exit game
2. Level 1 Gameplay
    i.   Questions for exam should be printed individually and continue after player inputs an answer "a", "b", or "c" for each question displayed
    ii. Player should be able to continuously input answers until inputting the correct controls "a", "b", or "c" without losing points in health.
    iii. If player makes a correct answer, they gain 100 points, and if incorrect answer, they lose 100 points.
    iv. "help" command should display assistance information specific to level
    v.   "status" command should display General Buckingham artwork, and player and level badge achieved

Actual Results:

All commands ran correct and expected functionality
Health, and name changed accordingly to user gameplay

Status:

O Not Tested

X Pass

O Fail

Test ID	Date:	Tested By:	System:	Environment:
3	04/28/2020	Marcus Kielman	MAC OS Catalina	Mac Terminal
Objective:		**Category:**	**Version:**	**Test Type:**
Test General Functionality of level 2 Gameplay		Level Gameplay	1.0	Manual Beta Test

Condition to Test:

Tests conducted on terminal in MAC OS Catalina.
Function groups tested individually for functionality, and then tested with overall integration into gameplay

Data/Steps to Perform:

1. Level Gameplay
    i. Navigation through General Buckingham's monologue
    ii. Navigation through level challenges
    iii. Navigation between Main Gameplay and specific Level Gameplay
2. Level 2 Gameplay
    i. Navigation through level 2 gameplay

Expected Results:

1. Level Gameplay
    i. Player should be able to input name, and place in playerHealth
    ii. "c" command should switch from main gameplay to level gameplay after General's monologue
    iii. Level should switch to Main gameplay upon completion
    iv. Challenges should be able to change from stage 1 to stage 3 consecutively unless damage taken (loss of 100 points). Player stays on stage until completed (gain of 100 points)
    v. When playerHealth is <= 0, display GAME OVER sequence and prompt to retry. When "Y" inputted, level challenge starts over, otherwise exit game
2. Level 2 Gameplay
    i. Random PIDs should be displayed for three processes
    ii. First stage should only allow first PID to be killed resulting in gain of 100 points
        a. Any other PID killed that shouldn't be results in loss of 100 points for each PID killed
    iii. Second stage should only allow first and second PID to be killed resulting in gain of 100 points
        a. Any other combination of PIDs killed that shouldn't be results in loss of 100 points for each PID killed
    iv. Third stage should require all PIDs to be killed resulting in gain of 100 points.
        a. Any singular PID killed or combination PIDs killed results in loss of 100 points
    v. "ps" command should displays three PIDs
    vi. "kill" command should set a specified PID to 0
    vii. "help" command should display assistance information specific to level along with goal for designated level
    viii. "status" command should display General Buckingham artwork, and player and level badge achieved

Actual Results:
All commands ran correct and expected functionality
Process IDs (PIDs) consistently random (must be regenerated with every GAME OVER sequence)
Health and gameplay values changed accordingly to user gameplay
Status:
O Not Tested X Pass O Fail

Test ID	Date:	Tested By:	System:	Environment:
4	04/29/2020	Marcus Kielman	MAC OS Catalina	Mac Terminal
Objective:		**Category:**	**Version:**	**Test Type:**
Test General Functionality of levels 3 Gameplay and leaderboard functions		Main Gameplay & Level Gameplay	1.0	Manual Beta Test

Condition to Test:

Tests conducted on terminal in MAC OS Catalina.
Function groups tested individually for functionality, and then tested with overall integration into gameplay

Data/Steps to Perform:

1. Level Gameplay
   i. Navigation through General Buckingham's monologue
   ii. Navigation through level challenges
   iii. Navigation between Main Gameplay and specific Level Gameplay
2. Level 3 Gameplay
   i. Navigation through level 3 gameplay

Expected Results:

1. Level Gameplay
   i. Player should be able to input name, and place in playerHealth
   ii. "c" command should switch from main gameplay to level gameplay after General's monologue
   iii. Level should switch to Main gameplay upon completion
   iv. Challenges should be able to change from stage 1 to stage 3 consecutively unless damage taken (loss of 100 points). Player stays on stage until completed (gain of 100 points)
   v. When playerHealth is <= 0, display GAME OVER sequence and prompt to retry. When "Y" inputted, level challenge starts over, otherwise exit game
2. Level 3 Gameplay
   i. "burst" command should change given thread "open", "read", or "write" to a specified value and display that this has been changed to value. ("UNKNOWN CHANGE" displayed to terminal otherwise)
   ii. Random values generated as the burst time for threads "open", "read", and "write", along with a burstTime that a specific thread must be set to.
   iii. Threads and burst times displayed whenever prompting for another command with the burstTime one should be set to
   iv. First stage allows burst time of open to be changed to value burstTime for a gain of 100 points to Health
      a. Any other time changed to, or any other thread modified results in loss of 100 points
   v. Second Stage allows burst time of open and read to be changed to value burstTime for gain of 100 points in Health
      a. Any other time changed to, or any other thread modified results in loss of 100 points

vi. Third stage allows burst time of open and write to be changed to burstTime for a gain of 100 points in Health a. Any other time changed to, or any other thread modified results in loss of 100 points vii. "help" command should display assistance information specific to level along with goal for designated level	

Actual Results:

All commands ran correct and expected functionality
Burst Times are consistently random (must be regenerated with every GAME OVER sequence)
Burst time inputted from "burst" command defaulted to 0 when no burst time given

Status:

O Not Tested

X Pass

O Fail

Test ID	Date:	Tested By:	System:	Environment:
5	04/29/2020	Marcus Kielman	MAC OS Catalina	Mac Terminal
Objective:		**Category:**	**Version:**	**Test Type:**
Test General Functionality of level 4 Gameplay and leaderboard functions		Level Gameplay	1.0	Manual Beta Test

Condition to Test:

Tests conducted on terminal in MAC OS Catalina.
Function groups tested individually for functionality, and then tested with overall integration into gameplay

Data/Steps to Perform:

1. Level Gameplay
   - i.   Navigation through General Buckingham's monologue
   - ii.   Navigation through level challenges
   - iii. Navigation between Main Gameplay and specific Level Gameplay
2. Level 4 Gameplay
   - i.   Navigation through level 4 gameplay

Expected Results:

1. Level Gameplay
   - i.   Player should be able to input name, and place in playerHealth
   - ii.   "c" command should switch from main gameplay to level gameplay after General's monologue
   - iii. Level should switch to Main gameplay upon completion
   - iv.   Challenges should be able to change from stage 1 to stage 3 consecutively unless damage taken (loss of 100 points). Player stays on stage until completed (gain of 100 points)
   - v.   When playerHealth is <= 0, display GAME OVER sequence and prompt to retry. When "Y" inputted, level challenge starts over, otherwise exit game
2. Level 4 Gameplay
   - i.   "help" command should display assistance information specific to level along with goal for designated
   - ii.   "malloc" command should change the given object "location", "switch", "power" to the inputted allocValue. "Unknown Change" displayed when malloc ran on any different object
   - iii. Objects and number of bytes allocated for each object displayed when prompting input
   - iv.   Allocation values for "location", "switch", and "power" randomly generated along with correctAlloc (value given object must be changed to to cause segmentation fault)
   - v.   First stage requires location value to be changed to correctAlloc for increase in 100 points (results in stimulated segmentation fault in gameplay)
   - vi.   Second stage requires switch value to be changed to correctAlloc for increase in 100 points
   - vii. Third stage requires power value to be changed to correctAlloc for increase in 100 points

Actual Results:
All commands ran correct and expected functionality
allocValue inputted from "malloc" command default to 0 when no number given
allocation values consistently random (must be regenerated with every GAME OVER sequence)
correctAlloc value not displayed within level 4 gameplay

Status:
O Not Tested
X Pass
O Fail

Test ID	Date:	Tested By:	System:	Environment:
6	04/29/2020	Marcus Kielman	MAC OS Catalina	Mac Terminal
Objective:		**Category:**	**Version:**	**Test Type:**
Test General Functionality of levels 5 Gameplay and leaderboard functions		Level Gameplay	1.0	Manual Beta Test

Condition to Test:

Tests conducted on terminal in MAC OS Catalina.
Function groups tested individually for functionality, and then tested with overall integration into gameplay

Data/Steps to Perform:

1. Level Gameplay
    i.   Navigation through General Buckingham's monologue
    ii.   Navigation through level challenges
    iii. Navigation between Main Gameplay and specific Level Gameplay
2. Level 5 Gameplay
    i.   Navigation through level 5 gameplay

Expected Results:

1. Level Gameplay
    i.   Player should be able to input name, and place in playerHealth
    ii.   "c" command should switch from main gameplay to level gameplay after General's monologue
    iii. Level should switch to Main gameplay upon completion
    iv.   Challenges should be able to change from stage 1 to stage 3 consecutively unless damage taken (loss of 100 points). Player stays on stage until completed (gain of 100 points)
    v.   When playerHealth is <= 0, display GAME OVER sequence and prompt to retry. When "Y" inputted, level challenge starts over, otherwise exit game
2. Level 5 Gameplay
    i.   "help" command should display assistance information specific to level along with goal for designated
    ii.   "ifconfig" command displays IP-addresses for BOS and S-BOS
    iii. "open" command opens simulated file that is either corrupt or not corrupt
        a. Corrupt files will result in loss of 100 points
        b. Non-corrupt files will result in gain of 100 points and information needed for sixth level
        c. Information needed for sixth level (password, and PID to kill) must be randomly generated
    iv.   Occurrence of corrupted files and IP addresses within files randomly generated
    v.   Simulated headers for files displayed when prompting input

Actual Results:
All commands ran correct and expected functionality Corruption files consistently random (must be regenerated with every file instance) Occurrence of different IP addresses within files consistently random (must be regenerated with every file instance) Password and PID to kill consistently random

Status:
O Not Tested X Pass O Fail

Test ID	Date:	Tested By:	System:	Environment:
7	04/29/2020	Marcus Kielman	MAC OS Catalina	Mac Terminal
Objective:		Category:	Version:	Test Type:
Test General Functionality of level 6 Gameplay and leaderboard functions		Level Gameplay	1.0	Manual Beta Test

Condition to Test:

Tests conducted on terminal in MAC OS Catalina.
Function groups tested individually for functionality, and then tested with overall integration into gameplay

Data/Steps to Perform:

1. Level Gameplay
    i. Navigation through General Buckingham's monologue
    ii. Navigation through level challenges
    iii. Navigation between Main Gameplay and specific Level Gameplay
2. Level 6 Gameplay
    i. Navigation through level 6 gameplay

Expected Results:

1. Level Gameplay
    i. Player should be able to input name, and place in playerHealth
    ii. "c" command should switch from main gameplay to level gameplay after General's monologue
    iii. Level should switch to Main gameplay upon completion
    iv. Challenges should be able to change from stage 1 to stage 3 consecutively unless damage taken (loss of 100 points). Player stays on stage until completed (gain of 100 points)
    v. When playerHealth is <= 0, display GAME OVER sequence and prompt to retry. When "Y" inputted, level challenge starts over, otherwise exit game
2. Level 6 Gameplay
    i. "help" command should display assistance information specific to level along with goal for designated
    ii. "cd" command changes to directories "/etc", "/bin", "/bash", "/Battlezone", "/Shutdown", "/Network_directory" in accordance to stage
        a. Any other directory changed to results in a loss of 100 points
    iii. "ls" command displays directories at each stage
    iv. First stage displays directories "/bin", "/bash", "/etc" through "ls" command, and only allows directory change to "/etc" for a gain in 100 points
    v. Second stage displays directories "/Battlezone", "/Shutdown", and "/Network_directory" through "ls" command, and only allows directory change to "/Network_directory" for a gain in 100 points
    vi. Third stage displays "file_shutdown" through "ls" command, and allows access to file through "sudo" command
        a. Password received form level 5 prompted (correct password needed for 100 point gain, and prompt to input kill command. Loss in 100 points otherwise)

	b. Correct PID killed results in a gain of 100 points and completion of game. Loss of 100 points otherwise
Actual Results:	
All commands ran correct and expected functionality	
Status:	
O Not Tested	
X Pass	
O Fail	

Test ID	Date:	Tested By:	System:	Environment:
8	04/29/2020	Marcus Kielman	MAC OS Catalina	Mac Terminal
Objective:		**Category:**	**Version:**	**Test Type:**
Test General Functionality of leaderboard interface		Main Gameplay	1.0	Manual Beta Test

Condition to Test:

Tests conducted on terminal in Linux Machine oz-ist.abington.psu.edu.
Function groups tested individually for functionality, and then tested with overall integration into gameplay

Data/Steps to Perform:

1. Main Gameplay
   i. Navigation to BanderSnatch leaderboard
   ii. Control functionality for manipulating leaderboard

Expected Results:

1. Main Gameplay
   i. "saveleader" command should append into leaderLog.txt and save player name and health into leaderboard
   ii. "leaderboard" command should display game leaderboard
   iii. "leaderclear" command should clear leaderboard data

Actual Results:

All commands ran correct and expected functionality
Player can only save to leaderboard in main gameplay

Status:

O Not Tested

X Pass

O Fail

Test ID	Date:	Tested By:	System:	Environment:
9	05/01/2020	Marcus Kielman	Linux Machine oz-ist.abington.psu.edu	Ubuntu Terminal
Objective:	**Category:**	**Version:**	**Test Type:**	
Test General Functionality of gameplay on Linux Terminal	General Testing	1.0	Manual Beta Test	

Condition to Test:

Tests conducted on terminal in Linux Machine oz-ist.abington.psu.edu.

Data/Steps to Perform:

1. Main Gameplay
2. Level Gameplay

Expected Results:

Expectations for previous tests on MAC OS should be fulfilled on Linux Machine.

Actual Results:

All commands ran correct and expected functionality

Status:

O Not Tested

X Pass

O Fail