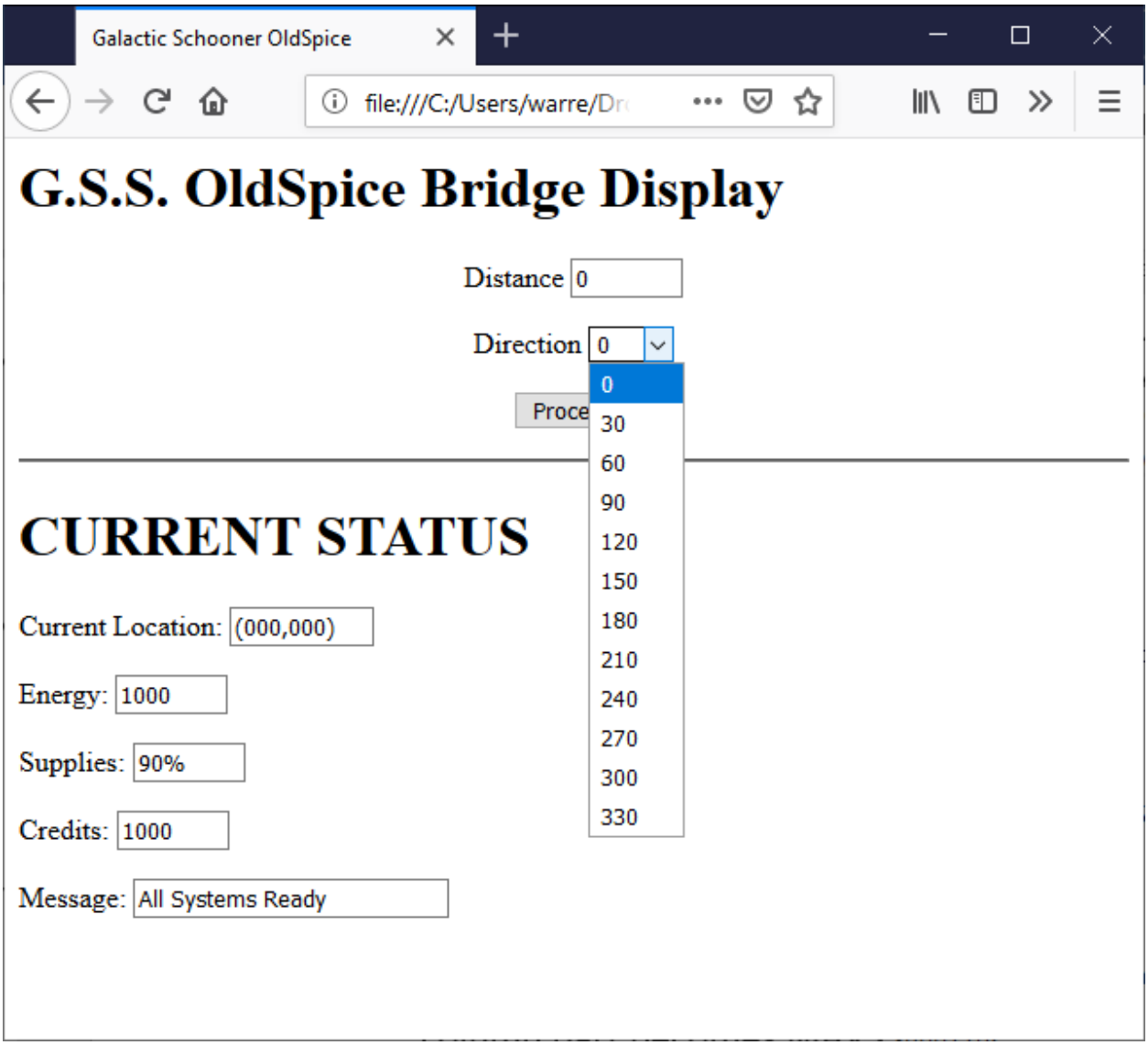
SpaceHunt: *A space-based role playing game for one player.*

In SpaceHunt, the player commands the Galactic Schooner, OldSpice. The goal of the game is to locate the ancient recipe for Koca-Kola which was stolen by BadMax and his interstellar gang of henchmen, and hidden on an unknown planet in the Pentium System. An initial working interface may look something like this:



The initial interface must allow the user to move the space ship using direction and distance as well as allow state information for location, energy, supplies and credits to be observed. As your game becomes more sophisticated, you can expect the interface to become more complex.

Glossary - A glossary is used to standardize some terms and concepts.

Asteroids	A celestial artifact
BadMax	Villain of the game
Celeron	A planet outside the Pentium System. Contains a Musk-Tesla Energy Station, a repair depot and a mini-mart. There is trade with Xeon.
Celestial Artifacts	Planets, asteroids, space stations
Celestial Map	A document that identifies the location of all Celestial Artifacts you've encountered
Celestial Point	2D location in the game space. Consists of an x and y coordinate.
CP	Celestial Point – represented as the pair (0,0) to (MAX, MAX)
Credits	Virtual monetary tokens used for commerce. Also known as Digital Credits.
DeNiro drive	An efficient engine that can be used to upgrade galactic schooners. It consumes 5 units of energy for every unit of travel.
Koca-Kola Recipe	The item you are searching for
Mini-Marts	A place you can purchase supplies with Credits
Mucho DeNiro Drive	An ultra-efficient engine that can be used to upgrade galactic schooners. It consumes one unit of energy for every unit of travel.
Musk-Tesla Energy Station	A place you can purchase energy with Credits
Orbit	An intermediary position between being in space and being on a planet. In order to land on a planet, you must first enter orbit. Likewise, in order to leave a planet, you must first enter orbit
Pentium System	Uncharted area of space containing seven planets (Pentium-1 through Pentium 7)
Planets	A celestial artifact
Redirecting Cargo	Stealing merchandise, you've been paid to deliver.
Ryzen	A planet outside the Pentium System. Has an off-brand energy depot and mini-mart that charge inflated prices. Deals in stolen merchandise. Home to bandits and thieves.
Sensors	A collection of gadgets that detects celestial artifacts in nearby Celestial Points - basic sensors are good for 2 CP from your location. Enhanced ones are able to detect artifacts 5 CP from your location.
Shyster-Quack Drive	Energy inefficient base engine deployed as standard equipment in all galactic schooners. It consumes 10 units of energy for every unit of travel.
Space Stations	A celestial artifact
Strong Box	A secure container for storing a valuable item. Some of them send out transmitter signals that can be picked up by spacecraft in orbit around the planet the strong box is on.
Supplies	Goods necessary for survival. Mainly Red Vines and toilet paper. Without supplies a ship's crew will perish.
Transmitter Signal	A digital signal sent out by the Strom Box containing the Koca-Kola Recipe
Turn	An opportunity to enter a command. Every turn consumes 2% of the ships supplies.
Unit of Travel	One unit of travel is the space between adjacent Celestial Points
Wormholes	A rip in the space-time continuum. If your space craft enters a wormhole, it will reappear at some random location. The game map is completely surrounded by wormholes.
Xeon	A planet outside the Pentium System. Contains a Musk-Tesla Energy Station and a repair depot. There is trade with Celeron.
Rounding Behavior	Energy and supplies are always treated as rounded integer values

SPACEHUNT PRODUCT BACKLOG

User Story: SH-1 Spacecraft Movement **Priority**: HIGH
Story: As a player, I want to be able to move my spacecraft 0, 90, 180 or 270 degrees, and a specific distance from my current position so I can visit celestial points in the game space.

Note: Player's location in the game is represented as a celestial point located at a particular x and y coordinate on a MAX x MAX game map. While full game-play is specified to take place on a 128x128 game surface, during development there are benefits to parameterizing the size of the game surface allowing a more compact testing environment.

Acceptance Criteria:

1. Verify that if I move 0 degrees, for a distance of *k* CP and x < MAX-*k*, the x part of the player's coordinates increases by *k*, the y part of the player's coordinates remain the same, their energy decreases by 10**k* (for a basic engine) and their supplies are reduced by 2%.
2. Verify that if I move 180 degrees, for a distance of *k* CP and x $\geq$ *k*, the x part of the player's coordinates decreases by *k*, the y part of the player's coordinates remain the same, their energy decreases by 10**k* (for a basic engine) and their supplies are reduced by 2%.
3. Verify that if I move 90 degrees, for a distance of *k* CP and y<MAX-*k*, the x part of the player's coordinates remain the same, the y part of the player's coordinates increase by *k*, their energy decreases by 10**k* (for a basic engine) and their supplies are reduced by 2%.
4. Verify that if I move 270 degrees, for a distance of *k* CP and y$\geq$*k*, the x part of the player's coordinates remain the same, the y part of the player's coordinates decrease by *k*, their energy decreases by 10**k* (for a basic engine) and their supplies are reduced by 2%.
5. Verify that if I move 0 degrees, for a distance of *k* CP and x $\geq$ MAX-*k,* the player's x and y coordinates are set using the current wormhole behavior, their energy decreases by 10**k* (for a basic engine) and their supplies are reduced by 2%.
6. Verify that if I move 180 degrees, for a distance of *k* CP and x $\leq$*k* the player's x and y coordinates are set using the current wormhole behavior, their energy decreases by 10**k* (for a basic engine) and their supplies are reduced by 2%.
7. Verify that if I move 90 degrees, for a distance of *k* CP and y$\geq$MAX-*k*, the player's x and y coordinates are set using the current wormhole behavior, and y $\geq$0 and < MAX, their energy decreases by 10**k* (for a basic engine) and their supplies are reduced by 2% .
8. Verify that if I move 270 degrees, for a distance of *k* CP and y<*k*, the player's x and y coordinates are set using the current wormhole behavior, their energy decreases by 10**k* (for a basic engine) and their supplies are reduced by 2%.

User Story: SH-2 Game Configuration for Development **Priority**: HIGH
Story: As a developer, I want to customize my game play by selecting initial values for the state variables: location, energy, supplies, credits, fixed wormhole behavior random wormhole behavior, regular play/never dies, MAX game size so I can avoid setting these values through normal game play

Acceptance Criteria:
1. Verify that if we set the MAX to *k*, subsequent attempts to move beyond *k* results in wormhole behavior
2. Verify that if we select "never dies" the player can continue playing in spite of having zero or negative energy and/or supplies.
3. Verify that if we select "regular play" the player dies when running out of energy or supplies
4. Verify that we select random wormhole behavior, when player is relocated, they are relocated to a random CP
5. Verify that we select fixed wormhole behavior, when play is relocated, they are relocated to a specified CP

User Story: SH-3 Running out of energy **Priority**: HIGH
Story: As a player, I want to be notified when I run out of energy so I know I have lost the game

Acceptance Criteria:
1. Verify that if the player's energy has fallen below one, a message is sent to the player
2. Verify that if the player's energy has fallen below one and the configuration is set to "regular play" the game ends.

User Story: SH-4 Running out of supplies **Priority**: HIGH
Story: As a player, I want to be notified when I run out of supplies so I know I have lost the game

Acceptance Criteria:
1. Verify that if the player's supplies have fallen below one percent, a message is sent to the player.
2. Verify that if the player's supplies have fallen below one percent, and the configuration is set to "regular play" the game ends.

User Story: SH-5 Placing Celestial Artifacts Priority: HIGH
Story: As a game administrator, I want to be able to select where various Celestial Artifacts should be placed before the game is played

Acceptance Criteria:
1. Verify that the feature cannot be accessed by users with roles other than game administrator
2. Verify that Celestial Artifacts that are placed in a particular CP are recognized when the player activates their sensors within 2 CP of the Artifact
3. Verify that Celestial Artifacts that are placed in a particular CP cause a collision when the space craft enters that CP

User Story: SH-6 Sensors **Priority**: HIGH
Story: As a player, I want to see what is located at nearby Celestial Points, so I know where things are.

Acceptance Criteria:
1. Verify that if the player deploys sensors for the current CP, 2% of the supplies are consumed.
2. Verify that celestial objects within two CP of the current CP are displayed
3. Verify that celestial objects within two CP of the current CP are added to the Celestial Map

User Story: SH-7 Celestial Map **Priority**: HIGH
Story: As a player, I want to see all the cells in the game map I have visited and what is located in each cell upon request, so I can plan my next moves

Acceptance Criteria:
1. Verify that before any sensor activity is initiated, the Celestial Map shows Celeron, Xeon, and Ryzen
2. Verify that each time sensor activity is initiated the artifacts shown are added to the celestial map

User Story: SH-8 Celestial Gazetteer Priority: MODERATE
Story: As a Quality Engineer, I want to see a list of celestial artifacts including abandoned freighters, space stations, meteor storms and asteroids so I know where to go in order to interact with a celestial object.

User Story: SH-9 Nameable Persistent State Priority: MODERATE
Story: As a player, I want to be able to name and save an instance of my current game so I can select it from other saved instances and reload it to continue where I left off later.

User Story: SH-10 Encountering an Abandoned Freighter Priority: LOW
Story: As a player, I want to encounter an abandoned freighter drifting in space so I can take on additional supplies and energy.

User Story: SH-11 Docking at a Space Station Priority: LOW
Story: As a player I want to dock at a Space Station and possibly participate in a game of chance with a Casinian so I can (possibly) gain some Credits.

User Story: SH-12 Encounter a Meteor Storm Priority: LOW
Story: As a player I want to encounter a meteor storm to add some risk to the game.

User Story: SH-13 Collision with an Asteroid Priority: LOW Story: As a player, I want to collide with an Asteroid that lies on the path between the starting point of a move and the terminating point of a move so I can add some risk to the game.
User Story: SH-14 Being Boarded by Bad Max Priority: LOW Story: As a player, I want to have BadMax and his Henchmen attack my ship so I can add more risk to the game.
User Story: SH-15 Entering Orbit Priority: LOW Story: As a player, I want to enter the orbit of a Planet, so I can prepare to land.
User Story: SH-16 Leaving Orbit Priority: LOW Story: As a player, I want to leave the orbit of a Planet, so I can continue my space travel.
User Story: SH-17 Landing on a Planet Priority: LOW Story: As a player, I want to land on a planet so I can repair my ship or access various artifacts.
User Story: SH-18 Leaving a Planet Priority: LOW Story: As a player, I want to leave a planet so I can prepare for traveling in space.
User Story: SH-19 Recovering the Recipe Priority: LOW Story: As a player, I want to recover the Koca-Kola recipe so I can win the game.