SUBJECT: Initial interview with Jim Jones' Games creative genius Sean Avocation.
DATE: Sometime in the future

[1] **Requirements Engineer (RE):** Thanks for taking the time to meet with me this afternoon.

[2] **Sean Avocation (SA):** Oh, it's my pleasure. Mr. Jones said we were to give you all the help you needed in getting this game worked out.

[3] **RE:** Mr. Jones said that you had played a major role in coming up with the SpaceHunt game concept, could you tell me a little bit about it?

[4] **SA:** Sure. SpaceHunt is based on the premise that there is this space captain in command of the Galactic Schooner OldSpice. The captain has been commissioned by the KocaKola Kompany to locate their secret recipe that has been stolen by a bandit called BadMax. If the KocaKola recipe is recovered and delivered to the marketing department on the planet Eniac the captain and crew are awarded a Zillion credits, and win the game.

[5] **RE:** So the game consists of the OldSpice flying through space looking for a recipe?

[6] **SA:** That's correct.

[7] **RE:** That seems like a pretty wide-open problem. Are there any constraints or limitations?

[8] **SA:** Well to make things a little less wide-open, the recipe is hidden on one of the seven planets in the Pentium System, called Pentium-1 through Pentium-7. It's stored in a strong box fitted with a transmitter that sends out a beacon that can be detected aboard the OldSpice when it is close enough.

[9] **RE:** How close is close enough?

[10] **SA:** A space ship can either be in space or in orbit around a planet. So if the strong box is on a planet the OldSpice is orbiting, it can pick up the transmission. But once the OldSpice leaves orbit it can't pick up the signals.

[11] **RE:** Is that the game, the ship just goes into orbit around the Pentium planets until it picks up the signal? With all due respect, that doesn't sound very interesting.

[12] **SA:** Not quite. There are a number of challenges the player can encounter.

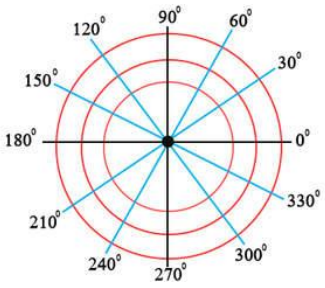
[13] **RE:** Such as?

[14] **SA:** Well, the OldSpice starts out with a certain amount of supplies and fuel. At the beginning of the adventure, it is stocked with 100% of its supply capacity and 1,000 units of energy, and the captain has been advanced 1,000 credits by the KocaKola Kompany for expenses. Every move consumes 2% of the supplies and an amount of energy that is a function of how far they move and the type of engine the ship is outfitted with. The basic engines the ship is initially equipped with use 10 units of energy per unit of movement. If they run out of supplies or energy, the crew dies and the game is over. But they can buy more fuel and supplies at service centers they might come across on planets and asteroids as long as they have credits.

[15] **RE:** Wow! That's a lot of information! Let me unpack this. So first of all, you talk about a "move." Tell me more about moves.

[16] **SA:** Of course! I always assume too much when I am explaining one of my games.

[17] The OldSpice is steered using units of 30 degrees (0, 30, 60, 90, 120, …, 330) from its current location across a two-dimensional plane. To move the ship, the player enters the direction and distance to move.



[18] While theoretically, this plane can extend to infinity, the game limits it to 128^2 celestial points (CP) with each being identified by an *x* and *y* position represented as (x,y). As a reminder, when you're looking at a point on a piece of paper, the x coordinate represents the horizontal and the y coordinate represents the vertical location. These will be (0,0) to (127,127). Spacecraft travel from one CP to another, so if the OldSpice is at CP (20,30) and moves one CP zero degrees they'll end up at CP (21,30). Likewise, if the OldSpice then moves one CP 270 degrees, it would end up at CP (21,29). I can't explain how to determine where you would end up if you move two CP at a 120 degrees right now, but if you google "Cosine,Sine" and review your trigonometry, it's pretty easy to do.

[19] **RE:** So the OldSpice moves along a plane – it's not a 3-Dimensional game space?

[20] **SA:** That's correct. When I first thought up the game, I wanted to use 3-Dimensional coordinates, but after talking to some other creatives, we thought that would make the game too hard. So we settled on just using a 2-Dimensional surface. Maybe we'll go back to 3-D one of these days, but for now, we're just using two coordinates.

[21] **RE:** OK. So where can the OldSpice move to?

[22] **SA:** Well, they can move to the Pentium System and visit one of the seven planets, and maybe retrieve the KocaKola recipe.

[23] **RE:** Do they know where the Pentium System is when the game begins?

[24] **SA:** Actually no. The Pentium System is in a different place every time the game starts, so part of the challenge is finding it before you run out of fuel or supplies.

[25] **RE:** So if the OldSpice consumes 2% of its supplies on each move, that means you run out of supplies after 50 moves, right?

[26] **SA:** Right! But you can actually run out of supplies sooner.

[27] **RE:** How does that happen?

[28] **SA:** Well BadMax is still out there, and if you run into him when you make a move, he will attack your ship with the following outcomes: (1) you fight them off; (2) they blow up your ship, killing everyone aboard and the game is over; (3) they board your ship, steal all of your credits and half of your remaining supplies. Half the time you fight them off, 20% of the time they blow up your ship and 30% of the time they board your ship and steal your credits and supplies.

[29] **RE:** How do you run into BadMax?

[30] **SA:** Every coordinate is called a Celestial Point, or a CP. When your move is complete, you're in a new CP. That CP could contain something when you move into it.

[31] **RE:** Like BadMax?

[32] **SA:** Exactly.

[33] **RE:** So what else could be in a CP when I move into it?

[34] **SA:** Well, in addition to BadMax, a CP could contain a meteor storm, a celestial artifact or an abandoned freighter. If you encounter a meteor storm, your ship is damaged. If you encounter a celestial object like an asteroid 90% of the time your ship is damaged and 10% of the time the OldSpice is destroyed in which case the crew dies and the game is over. If a ship is damaged, it is still navigable, but it consumes energy at 5 times its usual rate, so it is important to get it to a repair depot as soon as possible. If you encounter an abandoned freighter you take on its supplies to bring you up to 100% of your capacity, and all of its energy.

[35] **RE:** OK, that's a lot of different things that could be in a CP location you move into.

[36] **SA:** Did I mention wormholes?

[37] **RE:** No (flipping through notes), I don't think you did.

[38] **SA:** At certain places, wormholes exist that will take your ship from one point to another, many CPs distant, in one move while consuming a single unit of energy. For instance, if there is a wormhole at (0,26) and you move to that CP you'll be sent to another random location, like (10,15) and one unit of energy will be consumed. The 128x128 play area is surrounded by wormholes (i.e., if you move off the game map, a wormhole will drop you back into the map at a random location). Wormholes may also exist within the play area.

[39] **RE:** A couple of questions back, you mentioned that if the ship gets damaged, it needs to go to a repair depot. Tell me about those.

[40] **SA:** Oh sure. I guess I missed that. There are a number of repair and service stations scattered throughout the game space. You can buy energy or supplies, get damage repaired and even upgrade your engines. These are also places you can end up after you make a move to a new CP. I forgot about them when I was telling you about meteor storms, celestial artifacts and all those other things.

[41] **RE:** Tell me more.

[42] **SA:** If you encounter a Musk-Tesla energy station you can buy additional energy. Depending on the spot market, units of energy may differ from station to station. Often these energy stations have mini-marts associated with them where you can top off your supplies. Some of these stations also include repair depots that can repair damage and do upgrades. Both the supplies as well as the repair/upgrade prices have been standardized across the Musk-Tesla line of service centers, so supplies, repairs and upgrades cost the same at every station. Supplies cost one credit per percentage of capacity, repairs are a flat 100 credits and the upgrades vary, depending on how much you want to spend.

[43] **RE:** Tell me about upgrades.

[44] **SA:** You can upgrade to the more efficient DeNiro propulsion system that only consumes 5 units of energy per CP traveled for 200 credits. Or you can upgrade to the even more efficient Mucho-DeNiro propulsion system that consumes only one unit of energy for each CP you travel for 500 credits. You can also purchase auxiliary energy pods that allow the OldSpice to take on an additional 500 units of energy over its standard capacity of 1,000 for 100 credits; an enhanced sensor for 100 credits, or fuzzy dice for the bridge for 50 credits.

[45] **RE:** It sounds like it could take a lot of credits to do repairs, buy supplies, and energy, upgrade the engines and all that other stuff. But you only start out with 1,000 credits.

[46] **SA:** You can pick up extra credits by hauling freight between the planets Celeron and Xeon while you're out looking for the Pentium system. Celeron is home to a Musk-Tesla service center/repair depot/mini-mart as well as a number of traders that are always on the lookout for cargo ships that can transport their merchandise to Xeon. You can negotiate a contract for 100 credits and load your ship at Celeron in one turn. You consume the standard amount of energy to travel between Celeron and Xeon. It takes one turn to unload your ship when you reach Xeon, at which point you're paid. Xeon also has a Musk-Tesla franchise with a repair depot and mini-mart.

[47] **RE:** Are there any other planets?

[48] **SA:** Planet Ryzen is a backward cesspool of thieves and bandits. However, they pay (really) good money for cargo "redirected" to them by merchant ships that "lose their way" between Celeron and Xeon. You can pick up 1,000 credits for your cargo on Ryzen. No Musk-Tesla franchise is on Ryzen, but you can pay triple the prices for energy and supplies if you absolutely need them. However, if you "redirect" cargo this way, no one will hire you to transport merchandise again during the current gaming session. When you're on Ryzen you may encounter a Casinian and optionally participate in a game of chance, either losing or gaining 100 credits.

[49] **RE:** We kind of got off track earlier. I wanted to find out how the OldSpice locates and takes on the KocaKola recipe.

[50] **SA:** At any given location, you can deploy your sensors. This takes one turn and they will identify "celestial artifacts" (planets, asteroids, space stations, other spacecraft, wormholes, etc.) within two CP in every direction from your ship. If a planet is detected, it is identified.

[51] **RE:** How does that help the player?

[52] **SA:** If you identify one of the Pentium planets you'll enter its orbit. Entering orbit requires one unit of energy. If the KocaKola recipe is on the planet your sensor will alert you upon entering orbit, in which case you land, retrieve it and leave the planet and its orbit. The landing, retrieving the recipe and leaving orbit takes a total of 10 units of energy. You then travel to the planet Eniac where you will enter orbit and present the recipe to the marketing department, at which time you gain a zillion credits and win the game. If you equipped yourself with an enhanced sensor system at one of the service stations, it will detect out to five CP in every direction.

[53] **SA:** Look, I've got another meeting I've got to go to. But Ann Interface from the User Experience team is waiting right outside the door. She can explain how we want the user to interact with the game.

[54] **RE:** Thanks for all your help!

[55] **AI:** Hi RE (shakes hand). We don't want to constrain you too much, but the UX team wants the user to specifically interact with the game in a couple of different ways.

[56] **RE:** It's good to meet you Ann. We want Jones' Games to be happy with what we produce, so tell me about it.

[57] **AI:** Well for this game, we want the player to feel like they are on the bridge of the OldSpice. We're thinking they are looking at an information cluster on the screen that shows their location, as well as the amount of energy, credits and supplies they have. Also a message display to show any kind of messages that would be important for the captain to know, such as the result for a sensor scan. This should be updated after every move is completed.

[58] **SE:** What about controls?

[59] **AI:** Well we hope that most of the interaction can be done though a mouse. For instance, selecting direction and distance for a move could be done through a set of pull-downs. So would entering and exiting orbit and landing to load and unload cargo. But you might have better ideas. We just don't want this to be keyboard heavy.

[60] **SE:** Anything else?

[61] **AI:** Yes, we want there to be an artifact directory that shows were things are. For instance, when the game begins, the coordinates of the planets Eniac, Celeron, Xeon and Ryzen should be in the directory. In addition, whenever an artifact us detected by the sensor, it's coordinates and description should be added to the directory.

[62] **SE:** That explains the situation to me quite well. I think we can come up with a user experience you'll be happy with.

[63] **AI:** Before I forget, we also need to have it have a validation mode.

[64] **SE:** Validation mode? What's that?

[65] **AI:** There should be a method to have the game come up with a repeatable beginning state for testing.

[66] **SE:** I don't know if I understand.

[67] **AI:** Well, a lot of things are placed randomly around the game space like planets, wormholes asteroids, etc. We want to make sure for validation purposes there is a mode where the QA folks can specify where those things are located, instead of having them placed randomly. This way, their tests are repeatable. But to keep regular players from accessing it, we need to have the QA folks enter a "magic cookie" like typing "XYZ" or something when they enter the player name to put it into the validation mode.

[68] **SE:** Oh, OK. I understand now.

[69] **AI:** We think it is important for you to speak with Jane Lunix from the Engineering team as well. I noticed her in the hallway. She can explain some of the technical requirements we have.

[70] **RE:** OK. Thanks for all your help.

[71] **JL:** Hi Requirements Engineer, it's nice to get a chance to meet you. Over at Engineering, we decided on some of the technical specifications.

[72] **RE:** OK, shoot.

[73] **JL:** Well, we want this to be playable using a web browser.

[74] **RE:** OK. Where will you be hosting it.

[75] **JL:** That's the thing. We don't want to have to beef up our servers to accommodate all the players. We're OK providing a place for the web pages, but we don't want to be doing a lot of computational work at our end. So it has to be completely client-side. We were thinking Javascript.

[76] **RE:** OK. That sounds fine. I think I've got some half-stack CS300 students that know Javascript.

[77] **JL:** Great, just as long as they're cheap.

[78] **RE:** Oh yeah. They like, cost nothing.

[79] **JL:** Great. We'll be looking forward to some great things then.