# Log Book

Student Name: Jekyoung An

Student ID: 20125059

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Time Spent | Date | To do | Work Done | Detail | Bugs |
| 0.5 hours | 14/03 |  | Created template. | Created template with main, init, idle, keyPressed and think class |  |
| 1 hours | 15/03 | Display a basic window | * Get a basic window displayed. * Render basic shapes. * Try to get transparency working. | * Playing around with basic shapes * Setting up logics to get basic template working | Transparency not working |
| 1 hours | 18/03 |  | * Try to get animation working | * Attempted to get animation working but couldn’t due to unknown compile exception * Structs for Vec2f, Vec3f and Particle\_t implemented |  |
| 1 hours | 18/03 | Basic snow animation | * Implemented basic 5 particle snow animation | * Fixed the unknown exception * Exception was due to index error   sizeof(particleSystem) reached over the array length since size sizeof calculates sizeof bytes, not array length.    This solved the issue.   * Added blending functions to able alpha channels for transparency     This fixed the previous bugs with transparency.  Error when particleSystem array was initialised with MAX\_PARTICLE so fixed int of 5 is used till I find out why that has errors.      Image of working particle snow.    Position, size, transparency randomised.  RandomFloat function added for returning a random range of float returned. | MAX\_PARTICLE has a lint when initialising with particleSystem array. |
| 3 hours | 18/03 | * Snow particle animation fully implemented | * 1000 particles working. * Simple wind effect. * Keyboard interaction. * Snow gravity. * Spawning at interval. | Max snow particle size of 1000. Still uses fixed int at particle system.  Simple wind effect to the left.  When pressing ‘s’ particle will gradually spawn in. When pressed ‘s’ again particles when deactivate slowly.  Every 10 frames 10 particles will spawn in.  Simulated snow gravity by dividing the snow size by a 1000.  Particle will gradually decrease transparency at x=-0.75f and fully deactivate at x=0.9f or y=1.  Will minus 0.05f transparency every time think is run if particle below x=0.75f. |  |
| 0.5 hour | 18/03 |  | * Attempt to make bitmap text | Tried to do string concatination and convert int to string but errors arrised.  Added basic bitmap text for now | Error when using strcat and itoa. |
| 1 hour | 20/08 |  | * Fixed bitmap text error * Adjusted particles | Fixed error when using strcat and itoa by adding deprecated error ignore at the first line of code.  Added amount of particle activated as bitmap text display    **Adjustments to snow particle**   * Split snow display   Split some snow to display behind and some to front (to be used in future).   * Wind effect features added   Pressing ‘d’ will toggle wind to ‘left’, ‘right’ or disabled.   * Shake effect added   Pressing ‘a’ will toggle shake snow ‘on’ or ‘off’.   * Snow velocity changed   Changed so snows last longer on screen. (For debugging use. Be adjusted back later).   * Snow spawning adjusted   isActivated can be set to 1 or 2. 1 being spawned behind snowman and 2 for front.  Spawns 16 snow particles per 10 frames. (For debugging use).   * Snow deactivation adjusted   Below x=0.75f transparency will decrease 5% at every think run. (1/60 seconds)   * Particle recycle   Pointer (array index) is used to keep in track of what particle to activate. Error after 1000 particles are spawned since some particles deactivates slower.  When particle deactivates its position and transparency will be reset to randomise.  ***I am more used to C and openGL now. Productivity has been increased!*** | * Particle recycle system not working as intended |
| 2 hours | 27/03 | - Recycle snow | - Fixed bug with snow recycles | Deactivating and activating working.  Max particle of 1000 is correctly working  Used a while loop rather than for loop so every time a snow particle with isActived = 0 is switched to 1 or 2 would increment snowsSpawned with will always activate the right amoun of snow particles. |  |
| 30 mins | 27/03 |  | * Finished diagnostics bitmap text |  |  |
| 1 hour | 27/03 | -Added background  -Added snowman |  |  |  |
| 30 mins | 27/03 | -Basic snowman movement added |  | Snowman can be used by pressing down on pl;’. Tried to use arrow keys but did not work. Will fix in future. Scaling when moving backwards not implemented yet. | * Arrow key movement not working |
| 10 mins | 28/03 |  | * Define bug fixed | Removed the equal’s sign.  Now it works as intended and MAX\_PARTICLE is used for loop instead of calculating array size using sizeof(). |  |
| 30 mins | 28/03 |  | * Changed wind effect | Changed wind so it is stronger and more exponential. |  |
| 1 hour | 29/03 | * Snowman movement with arrow keys | * Fixed the bug with arrow keys not working | ***With the help from the lecturer, these features were implemented***    Added two more glut prototypes to handle arrow keys pressed down and up.    ACSII keys for the arrow keys defined |  |
| 4 hours |  | * Star particles added |  | Changed background to a black environment to simulate night-time. Also a sunset color on the floor added to give a spacious effect.  Stars are made up of line from centre (origin) and draws out of centre with decreasing opacity.    Helper function is made to draw many lines easily.  If the star effect is on the stars will turn on one by one looping through the starSystem array. When the stars are on, it will have a breath in and out effect with opacity changes and the scale will bounce in and out. When reaching below 0.1f opacity star will reset to a different location. While stars activated, when the user turns off the star effect the stars will gradually turn off like the snow. When star is toggled off and the star opacity reaches below 0.1f the star will no longer be displayed on the scene. |  |
| 10 min |  | * Bitmap text for snowman control |  | Added final helper to know that users can control the snowman with the arrow keys on their keyboard. |  |