Winter 2021

COSC 3P98 Assignment 3 mark breakdown

Q1: Particle Fountain

Basic fountain simulation: **[tot = 35]**

- models for ground, particles [4] ✓
- Engine
  - basic gravity, motion [10] ✓
  - ground bouncing [4] ✓
  - die eventually after falls off edge [4] ✓
  - speed toggle S [3] ✓
  - manual or stream generation F [3] ✓
  - random spin toggle [3] ✓
  - friction on ground toggle [3] ✓
  - reset [1] ✓

5 options from this list: **[tot 5 x 5 = 25]**

- particle trails
- explode
- spray toggle ✓
- sparks when collisions
- lighting (normals, lights,...)
- collide with obstacles (other ground objects) ✓
- textures
- viewer's eye is a particle ✓
- particles have different colours, shapes, ... ✓
- square hole in ground in which particles fall through ✓
- inter-particle collision
- sound FX
- groovy effect (anything reasonable!)

Bonus options: **[5 marks per extra item in above list (max 5 items = max 25 bonus)]**

Subtotal: 60 (up to max 85 with bonus)

(See general list on p. 3)

Winter 2021

Q2: Swarm of agents

Basic flocking **[tot 35]**

- rectangular box world [2]
- agent model (almost anything!) [2]
- basic flocking engine
  (destination, breathing space, social rule, prime directive) [15]
- leader agent (random destination) [4]
- speed toggle S [4]
- multiple agent generation [4]
- agent collision avoidance [3]
- reset [1]

5 options from this list **[tot 5 x 5 = 25]**

- colour states for agents
- smooth turning
- normals and lighting
- more flocking rules (mating? predator/prey?)
- textures
- viewer eye is an agent
- speed acceleration/deceleration
- trails
- dying agent effect
- sound FX
- groovy effect (anything reasonable!)

Bonus options: **[5 marks per extra item in above list (max 5 items = max 25 bonus)]**

Subtotal: 60 (up to max 85 with bonus)

(See general list on p. 3)

Winter 2021

General requirements **[12]**

- scene framed well in window [1] ✓
- rotation of scene on x, y, z, mouse [1] ✓
- glPerspective [1] -1 Not implemented
- glLookat [1] ✓
- toggle point, wireframe, solid objects [2] -2 Not implemented
- toggle flat and smooth (Gouraud) [1] (note: might not be visible depending on models) -1 Not implemented
- backface culling [2] -2 Not implemented
- double buffer for animation [2] ✓
- print out commands on DOS window, OR use GLUT menus [1] ✓

Style: **[8]**

- adequate comments [2] ✓
- modular code [2] ✓
- good use of data structures, global structures [2] ✓
- discretionary [2] ✓

General: 20 total

SUMMARY:

Application: 60 **(tot 60)**

General: + 14 **(tot 20)**

Bonuses: + _____ **(max 25)**

TOTAL = 74 **(base = 80, max= 105)**