Unity not relevant

C# similar to java

Architecture more important

MD simulations are phys simulations of particels and atoms and how they interect

Used in chemistry research

To visualise

We need SCALED DOWN for TEACHING STUDENTS

REALTIME running is CRUCIAL

At 60-90fps

Motion sickness

Needs to render twice as fast

Multithreaded code is needed

Thread pools

MORE IMPORTANT THAT THERE IS NO MOTION SICKNESS

IMPORTANT – MODULAR – NEEDS TO BE ABLE TO BE EXPANDED A PON

Up to us to explore data structure within each atoms

Recommended:

Entity component System

(Entities have: velocity and position and more:

Newtonian looks for entities with the desired components and does things)

Shaders can optimise…

Running on Gaming Laptop – he will send us the specs

Calculate more parmaters

Max 10 particles

Isolated environment

No global variables

Run 2 in parallel

Create and destroy particles (sandbox)

User Interface not necessary

**Scale?**

**Measurements must be scalable**

**/ in github constants 1 unit = Ang**

**/ t = Ns**

Virtual reality

Types of Interactions

* Newtonian physics
  + Unity not suitable
  + Force, Accelerations, etc
  + Calculus?
* Vector field
  + Coulomb potential
  + Lennard-Jones potential
    - Short range
  + Morse Potential
    - Long-range

Atoms not billiard – vibration

General Framework

Loop {

* Forces
* Apply
* Newtonian
* Correction
  + (dot product of velocities)
* (Collision detection? – fudge step)

}

We should go for every force: for every particle:

Asynchronis?

}

Exposed interaction

FINAL PRODUCT

Closed box with n particles that interact

Client happy to meet every few weeks – he wants to be involved.

QUESTIONS

What year level

Sandbox?

Examples given to us?