NE697: Introduction to Geant4

Geant4 from Scratch

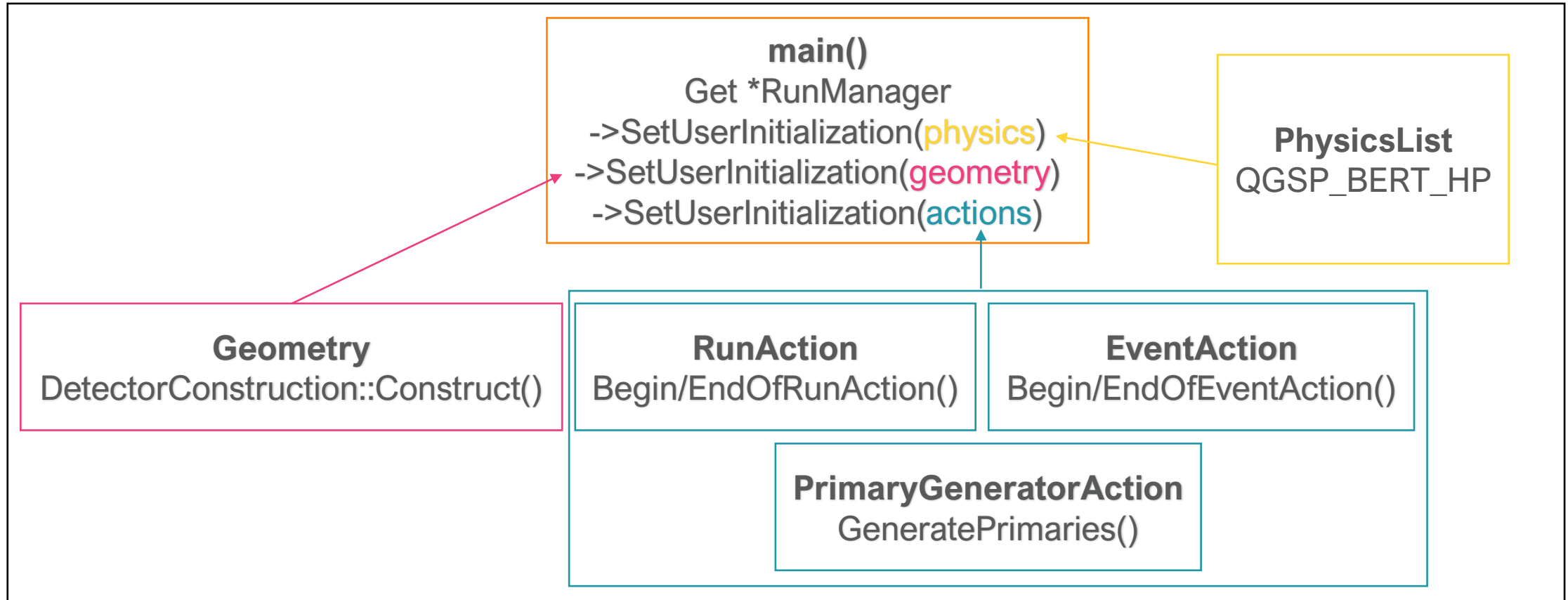**November 2nd, 2021**
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Today's Agenda

- Building our own Geant4 simulation

- Think about what you want to do for your final project
  - Proposal due by class, Thursday, November 11th
  - Create a "detection scenario": some sort of radiation bouncing around an environment
  - Ideally something relevant to your work (it's ok to simplify it a lot)
  - Record the hits and do something interesting with it
    - Imaging, different spectra, event reconstruction, dose calculation, etc
  - May use our current WIP as starting point

Geant4 Core Program Anatomy

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- Minimum working example using best practices

- [DEMO]
  - Build system & directory structure - done
  - main() - done
  - DetectorConstruction - world created
  - Physics - done
  - PrimaryGeneratorAction
  - ActionInitialization - started
  - EventAction
  - RunAction

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- Next steps…

- [DEMO]
  - Run object
  - Hit
  - HitTracker (Sensitive Detector)
  - File IO → .csv (inefficient, but simple!)
  - Custom material definitions
  - Messengers (custom UI commands)