Hands-On Session 5

Code without Solution: hands-on-5.tar.gz

Code with Solution: hands-on-5-solution.tar.gz

Exercise 5

Part A

- Complete implementation of the hit and sensitive detector classes for the Drift chamber
  (**EDChamberHit**, **EDChamberSD**) to account the following information when a charged track passed
  through the detector

  - the chamber layer number

  - the time when a particle hits chamber

  - the hit global position (the position in the world volume frame)

- Hints

  - The code for the layer number is already implemented, add missing code for the other quantities

  - To check if the hits are correctly accounted, add printing of the added hit data in
    EDChamberHit::Print()

Part B

- Implement hit and sensitive detector classes for the EM calorimeter (**EDEmCalorimeterHit**,
  EDEmCalorimeterSD) to account the following information:

  - the layer number

  - the total energy deposit in the layer (= the accumulated deposit from all particles).

  - To check your implementation, add printing of the calorimeter hit collection at the end of each
    event (in **EDEmCalorimeterSD::EndOfEvent()**), see the similar code in **EDChamberSD** class

- Hints

  - See example B4/B4c how to account the energy deposit in a calorimeter

  - In difference from Chamber hits, the Calorimeter hits have to be created in
    EDEmCalorimeterSD::Initialize() and updated in **EDEmCalorimeterSD::ProcessHits()**

Part C

- Implement drawing Chamber hits:

  - Add and implement **EDChamberHit::Draw()** function.

    * See **B2TrackerHit** class in **basic/B2/B2a** example

- Activate drawing hits in **vis.mac** macro

- Add menu in GUI using command line interface

  - Add a menu *View* in the toolbar[1]

  - In this *View* menu, add two buttons for setting the viewPoint at theta/phi (0,0) and (90,0)

  - In this *View* menu, add a button for setting a viewPoint and ask for it (define a command without parameters)

- Explore visualization commands

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[1]on Apple computers, the menu bar is always at the top of the screen