

Software (and Computing) education

Software education review

Changes since

ToDo

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ATLAS S&C week 11.12.17

Documentation workshop

Sw education review (2014/15)

- Mandate
 - Recommendations how to improve sw expertise in ATLAS and how to ensure enough developers
- Results on twiki
 - SoftwareEducationReviewGroup
 - Statistics, tutorial feedback analysis, etc

Recommendations

- Support ATLAS introduction tutorials
 - Does happen, well received, success
- Subsystem tutorials
 - Educate subsystem developers
 - Does not happen, **failure**
- Subsystem workbooks
 - Provide material for self-study beyond tutorials
 - Does not happen, **failure**

Recommendations

- Institutionlise on-the-job training
 - Pair new developers with experts
 - Semi-formal structure to guide
 - Bring talented new developers to expert level
 - Does not happen, **failure**
 - Education as (5-10%) task for experts?
- Recognise sw education in OTP / SCAB
 - Reward efforts more consistently
 - Works for regular teachers, irregular?

Recommendations

- Encourage external education
 - Attend CSC, other schools, commercial courses
 - More than in the past?
- Support development teams
 - More resilient against sudden loss of knowledge
 - Better training for newcomers
 - Encourage placement in teams e.g. for ATLAS qualifiers
 - More than in the past?

Education sources: formal events

- Twiki SoftwareTutorial
 - Beginners and newcomers
 - Introduction to ATLAS
 - How to access the data and send jobs
 - Recommended data sets for analysis
 - How to create analysis code
 - Materials highly appreciated
- Frequency
 - 3-4 times a year at CERN
 - ~1 national tutorial per year (listed on indico)

Education sources: formal events

- Specialised tutorials
 - Git and CMake
 - Monte Carlo in ATLAS
 - Software development
 - xAOD
 - CP tools
- Irregular
 - Support software migrations
 - Train experts

Education sources: self-study

- Work books (from twiki AtlasComputing)
 - Analysis (tutorial level)
 - Computing (data handling, grid jobs)
 - Software development (how to code for ATLAS)
- Code browsing and searching
 - Lxr, doxygen, gitlab browser
 - Works reasonably well, developers support this
- Support self-study
 - Used together with tutorial materials
 - Keep up-to-date
 - Entry point for documentation (should be ...)

Education and documentation

- Education depends on decent materials
 - Tutorials and work books are an asset
 - Missing materials for subsystems
- Education as self-study
 - Well-structured and up-to-date documentation essential
 - Avoid wasting time on “reverse-engineering”
 - Study code (too much detail for beginners)
 - Study behaviour (code is black box)
 - Collect and recommend links to other sources

Education and documentation

- One-stop-shop ideal
 - Find beginner to expert level materials in one well-structured location
 - Links to other sources collected and guided
- The twiki plays this role
 - AtlasComputing and pages below
 - Tension of “volatile” vs “stable” material
 - Access control (with egroups)?
 - Teach using the twiki in tutorials?
 - Advanced markup features, formulae, navigation aids

Education and documentation

- Twiki and other documentation sources
 - Recent tendencies to use gitlab style webpages
 - atlassoftwaredocs.web.cern.ch
 - Gitlab version control
 - No automatic display of committed changes, even though gitlab could do this, need to setup local Jekyll as an author :(
 - Should take a decision (and stick with it!)
- Modernise twiki usage and appearance?
 - Redesign (?)
 - Version control of (some) content with gitlab?

twiki and gitlab web pages

- (t)wiki were invented for good reasons
 - Empower non-expert users to create web-content
 - Focus on easy-of-use
 - Of course a great success
- Gitlab webpages
 - If they work automatically, close to wiki
 - All content versioned in gitlab
 - Need to know git merge review workflow
 - Allows distributed version control
 - Could be acceptable replacement for twiki?
- There can only be one

Summary and outlook

- Software education review
 - Successes and failures (subsystems)
- Should think about computing education too
 - The workbooks do
- Please consider education issues when evolving documentation
 - Non-expert user participation
 - One entry point
- Strengthening documentation effort improves education