Module 4M21: Software Engineering and Design

SOFTWARE SYSTEMS AND ENGINEERING

Examples Paper 4

Straightforward questions are marked †
Tripos standard (but not necessarily Tripos length) questions are marked ∗
Note, the first two questions are the same as in your handouts

1. A user interface prototype of the internet banking system where each client has two accounts: a current account and a savings account has been implemented. The system is described in Question 3, Examples Paper 3.

   (a) Describe how you would conduct the usability test.

   (b) What metrics would you use and how would you measure them?

2. (a) Describe the risks that would be typical for a project following the Waterfall software development model.

   (b) Identify Extreme Programming practices that would be not suitable for a project designing software used for medical diagnostics of illnesses in patients.

3. A new technology startup is developing a social photo sharing application. The application allows mobile phone users to capture images from the camera, or select existing images and "publish" them in their photo stream (optionally applying some image effects before submitting images). Users can "follow" photo streams of other users. In addition to the mobile app, users can access their account online via a website. Design a test plan for the project, specifying types of tests, including their purpose and examples.

4. A company developing mobile apps submitted an app for publishing in a leading app store. The application was rejected due to the Support URL being unreachable when evaluated in the app store review process. This mistake resulted in a two week delay in publishing the application.

   The development team started to use Five Whys technique to analyse the problem as follows:

   i. Why was the submission rejected? *The support URL was unreachable.*

   ii. Why the URL was unreachable? *The development team did not setup the URL on the server.*

iii. Why did not the team setup URL? *Preparing the release in a rush they specified the correct URL in the submission form but forgot to set it up on the server.*

iv. Why was not this mistake spotted by in testing? *The app submission is a manual process and there are no tests to check the correctness of the submission form data.*

v. Why was the submission process manual? *The company has only published two application and it was quick for a single person manage both submission.*

Using the Five Whys technique analyse the cause of the problem and suggest a proportional corrective action at every level of the analysis.