Engineering Tripos Part IIA

Paper 3F6: Software Engineering and Design

UI Design and Software management

Examples Paper 3

Straightforward questions are marked †
*Tripos standard (but not necessarily Tripos length) questions are marked **

1. You are a member of a team designing a web interface for an internet banking service where each client has two accounts: a current account and a savings account. Assuming that the user has logged-in and passed all security checks, provide screen designs and UI flow for each of the following use cases:
    (a) transfer £100 from the current account to the savings account
    (b) pay a bill of £36.50 to BT plc, customer number EA3482828
    (c) close all accounts and transfer any outstanding balance to an account at another bank.

2. A prototype of the internet banking system described in Q1 has been implemented:
    (a) describe how you would conduct a usability test?
    (b) what metrics would you use and how would you measure them?

3.

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

4. 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.

5. The mobile application developer company submitted the application 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 2-week delay in publishing the application. The development team used 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 didn't setup the url on the server
iii. Why didn't 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 wasn't 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.