

COMPUTER SCIENCE TRIPOS Part IA – 2025 – Paper 2

6 Software and Security Engineering (avsm2+arb33+mk428+rws26)

You have just launched your new band, where your role is to play the bagpipes and also act as the lead engineer of the website. Through a combination of talent and luck, the band has become an overnight sensation and you are now getting a huge surge of traffic to your site.

The band's website allows visitors to listen to your tracks, to purchase tickets for upcoming gigs and to sign up for your mailing list. However, you notice from the logs that a lot of visitors seem to browse the homepage and then leave without doing anything else.

- (a) Describe how might you use behavioural analytics and experimental frameworks to increase engagement with your website. Give a concrete example that you work through in your answer. [6 marks]
- (b) Explain the design and architecture of an A/B testing experimental framework that may be used to run experiments such as those you describe in part (a). [10 marks]
- (c) The lyrics for your upcoming album are very politically sensitive, and listeners (both existing fans and new arrivals) may not want to reveal they are fans of you any more. What steps might you take to keep your fans safe and informed? Describe briefly also some limitations in what you can accomplish around online safety from just changes to your own website. [4 marks]