OCR ☆

**Released September 2014
For Assessment Submission
June 2015 to June 2016**

GCSE COMPUTING

A452   Practical Investigation

CONTROLLED ASSESSMENT MATERIAL 2

> This assessment may be periodically reviewed. Please check on OCR Interchange that you have the Controlled Assessment material valid for the appropriate assessment session.

INSTRUCTIONS TO TEACHERS

* Please refer to Section 4 of the GCSE Computing specification for instructions on completing this controlled assessment task.
* The marking criteria should be available to candidates whilst completing the task.
* The quality of written communication will be assessed in the conclusions and evaluation section.
* The total number of marks for this unit is **45**.

INFORMATION FOR CANDIDATES

* This document consists of **8** pages. Any blank pages are indicated.

Teachers are responsible for ensuring that assessment is carried out against the Controlled Assessment set for the relevant examination series (detailed above).

Assessment evidence produced that does not reflect the relevant examination series will not be accepted.

OCR is an exempt Charity

Turn over

The purpose of this unit is to investigate a topic chosen from a set of options supplied by OCR. In this investigation, there will be an opportunity to look in depth at an aspect of computing that goes beyond the subject matter outlined in A451. The tasks will require a significant element of practical activity, which must be evidenced in the report and which will form a major element of the assessment. The topics will enable practical investigation and some supplementary research to be carried out in a variety of ways. These will include, but are not restricted to:

• practical investigations with hardware or software

• practical investigations with online resources.

Supplementary research may be required and resources may include:

• web-based enquiry

• contact with IT professionals

• research using computer-industry publications.

Candidates should complete all tasks

App Inventor

Throughout your work, explain fully the thinking that underlies decisions that you have made.

All program blocks and screen designs should be fully planned, explained and annotated using screenshots where appropriate.

All third-party material used to support your work must be properly referenced.

App Inventor is an online tool for creating apps for Android phones. It uses a block programming environment in order to build an app which can be run and tested either on a real Android phone or on a phone emulator on-screen. Obviously, there are many aspects of a real phone that cannot be duplicated on-screen so this task only requires on-screen functionality.

Your assignment

A university has many buildings on its campus. Each building contains a number of computers and other resources that can be used by staff and students. An app is required that will display a map of the campus and show what resources are situated in each building and how many computers are currently available in each. Users can make and cancel computer reservations with the app. The numbers available automatically adjust when users make or cancel reservations.

Below is an example of a map of a university campus.
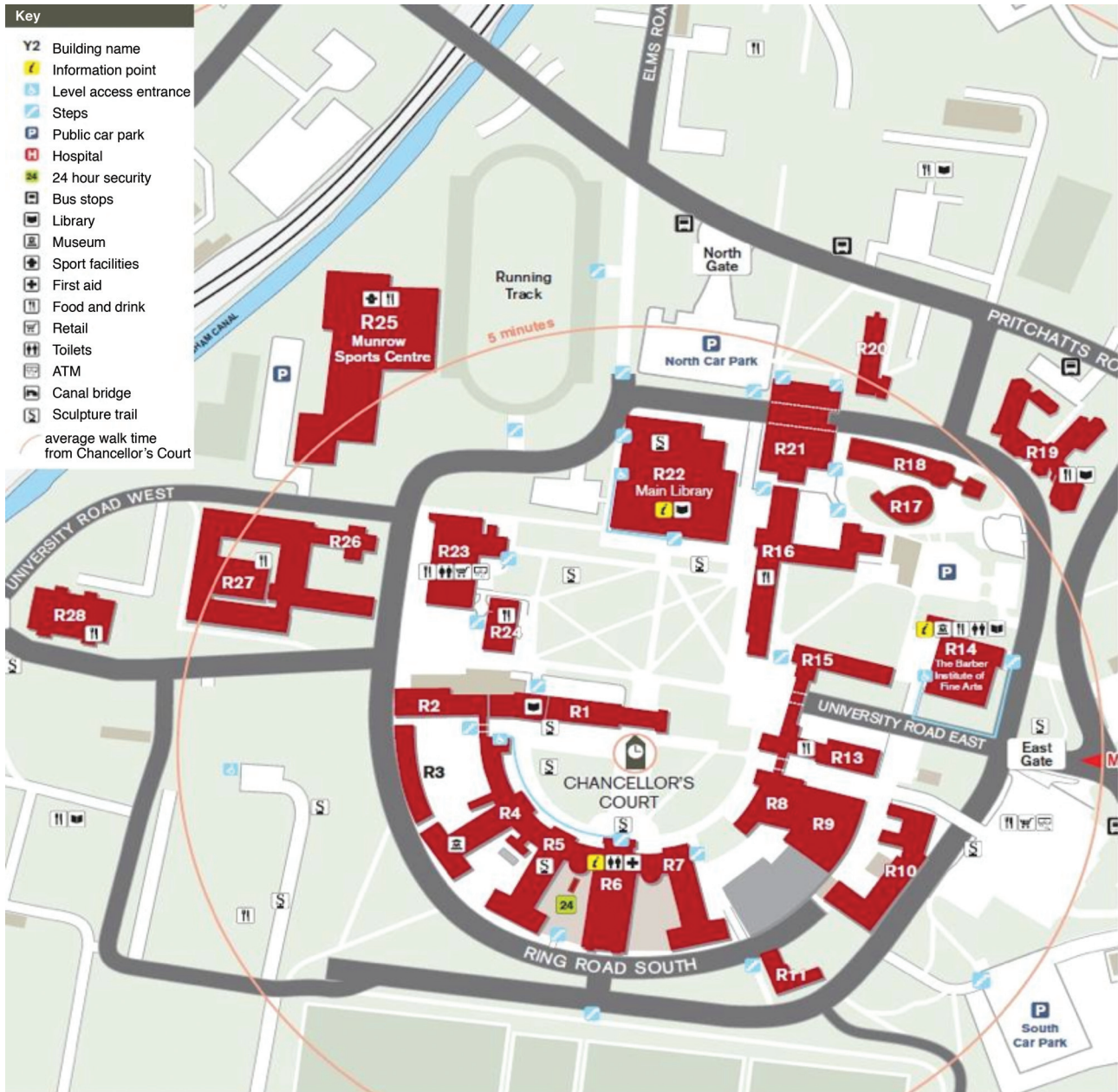
1. Create or obtain a map of a campus, with at least ten labelled buildings. Set up an app that displays this map on the phone or emulator.

2. For each of the ten labelled buildings, you will need to store the maximum number of computers available. Develop your app so that when the image of a building is touched or clicked, the number of available computers in that building is displayed.

3. Create two buttons, 'reserve' and 'cancel'. Ensure that when the 'reserve' button is clicked, the number of computers shown as available for that building is decremented. Similarly, the 'cancel' button increments the number of computers available. Make sure that operating the 'cancel' button cannot increase the number of available computers beyond the maximum in that building.

4. Create a feature that displays the location of computers available in other buildings in case there are none available in the chosen building.

5. Evaluate the success of your app and comment on how useful it might be to a member of the university.

6. Describe one simple additional feature that you would recommend adding to the app. Explain why it would be useful.

7. Extend your original app to include this additional feature. Make sure you show and explain all the planning and code blocks that you use.

8. A real implementation of this app would require an online database. Discuss the issues that need to be considered when planning the implementation of an online database **for this app**.

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