



# Cambridge IGCSE™

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**COMPUTER SCIENCE**

**0478/21**

Paper 2 Problem-solving and Programming

**October/November 2021**

PRE-RELEASE MATERIAL



No additional materials are needed.

**This material should be given to the relevant teachers and candidates as soon as it has been received at the centre.**

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## INSTRUCTIONS

- You should use this material in preparation for the examination.
- You should attempt the practical programming tasks using your chosen high-level, procedural programming language.

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This document has **2** pages.

Your preparation for the examination should include attempting the following practical tasks by **writing and testing a program or programs**.

A holiday park has eight squash courts that can be booked for an hour at a time. The first booking is from 08:00 to 09:00 and the last booking is from 17:00 to 18:00. All bookings start on the hour and bookings can only be made on the same day that the squash court is used. A screen displays today's date and how many squash courts are available for each hour.

When a booking is made, the name of the guest is recorded together with their mobile phone number. Once the squash court is booked, the guest is shown the court number together with a unique 4-digit code that can be used to unlock the squash court. Each booking is for one squash court for one hour. The 4-digit code must be different for each booking.

Write and test a program or programs for a computer system to manage the daily squash court bookings.

- Your program or programs must include appropriate prompts for the entry of data; data must be validated on entry.
- Error messages and other output need to be set out clearly and understandably.
- All variables, constants and other identifiers must have meaningful names.

You will need to complete these **three** tasks. Each task must be fully tested.

### **Task 1** – at the start of the day

Write a program to set up arrays to record the following for each hour:

- whether a squash court is booked or available
- the name of the guest
- the mobile phone number of the guest
- the unique 4-digit code for the booking.

Set up a screen to display the court availability at the start of the day.

### **Task 2** – making a squash court booking

Check if there is a squash court available at the time requested. If a squash court is available, record the guest's name and mobile phone number. Mark the squash court as booked for that hour. Generate and record the unique 4-digit code for the booking. Display the mobile phone number for the guest to check, display the court number and the 4-digit code for the guest to remember. Display the updated court availability, showing an hour as fully booked if all the squash courts are now booked for that hour.

### **Task 3** – at the end of the day

Calculate the total number of squash court bookings. Find the hour(s) and court(s) with the most bookings. Display this information.

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