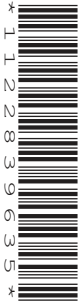# Cambridge IGCSE™

COMPUTER SCIENCE **0478/22**

Paper 2 Problem-solving and Programming **February/March 2022**

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.

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.

[Turn over

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

A program is needed to record the number of strokes played by each player in a round of golf and decide who is the winning player.

The object of the game of golf is to hit a small ball into a series of small holes using a golf club. A score is kept of the number of times a player needs to hit the ball to get it in a hole; this is the number of strokes for the hole. The total score for a round of golf is the total number of strokes taken for each hole. The player with the least number of strokes is the winner.

A golf course consists of 9 or 18 holes. A round of golf is completed when all the holes have been played. There can be 2, 3 or 4 players taking part in a round of golf. The number of strokes that an experienced golfer would take to complete a round is called par. The scores for the round are displayed in relation to the par score. For example, if par for an 18-hole course was 72, a score of 80 would be 8 over par and a score of 70 would be 2 under par.

Write and test a program or programs to score a round of golf:

- Your program or programs must include appropriate prompts for the entry of data. Data must be validated on entry.
- All outputs, including error messages, 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 – setting up the round

Each player's scores for the round are to be stored in an array with a separate score for each hole. The scores in these arrays are to be set to zero before a round starts.

The following data is to be input and stored:

- the number of players taking part in the round
- the names of the players
- the number of holes to be played: 9 or 18
- the par for the course.

The number of players, their names, the number of holes to be played and the par for the course are all displayed to be checked before the round starts so that any errors seen can be corrected.

Task 2 – scoring the round

For each hole played, each player's name is displayed on the screen and they are asked to enter the number of strokes they played for that hole. Each player must enter the number of strokes twice to verify their score. A player can choose to see the total number of strokes that they have played so far in the round.

Task 3 – deciding the winning player

At the end of the round, display the name and final score for each player relative to par. The winner is identified; display their name and the winning score. There are also options that display:

- every player's score for each hole
- the player's name and hole number of any score of one for a hole (hole-in-one)
- the average score for the round
- the average score for a hole.