
COMPUTER SCIENCE

0478/22

Paper 2 Problem-solving and Programming

October/November 2016

PRE-RELEASE MATERIAL

No Additional Materials are required.

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

READ THESE INSTRUCTIONS FIRST

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



In preparation for the examination candidates should attempt the following practical tasks by **writing and testing a program(s)**.

The manager of a supermarket needs a program to record donations to charity. Each customer has the choice of three charities to donate to, and 1% of their shopping bill will be donated to the chosen charity.

Write and test a program for the manager.

- Your program must include appropriate prompts for the entry of data.
- Error messages and other output need to be set out clearly.
- 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 – Set up the donation system

Set up a routine that allows:

- the names of three charities to be input and stored
- the charity names to be displayed with a number (1, 2 or 3) beside each name
- a choice of 1, 2 or 3 to be entered to choose the charity, all other entries rejected
- the value of a customer's shopping bill to be entered
- the donation to be calculated
- three totals to be set to zero ready to total each charity donation

TASK 2 – Record and total each donation

For a customer's shopping bill:

- input a charity choice of 1, 2 or 3
- input the value of a customer's shopping bill
- calculate the donation
- add the donation to the appropriate total

Output the name of the charity and the amount donated.

TASK 3 – Show the totals so far

Extend TASK 2 to accept:

- donations from more customers
- a charity choice of -1 to show the totals so far

Display the charities' names and the totals in descending order of totals.

Calculate a grand total of all three totals.

Output 'GRAND TOTAL DONATED TO CHARITY' and the amount of the grand total.

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