

AS GCE INFORMATION AND COMMUNICATION TECHNOLOGY

G062/01 Structured ICT Tasks

MAY 2016

Issued September 2015

Maximum mark 80



INSTRUCTIONS TO CANDIDATES

- You should attempt **all** the tasks, working independently from other candidates.
- There are no time limitations on the tasks other than that they must be submitted by the appropriate internal deadline set by the candidate's centre. This deadline will reflect the need for the centre to complete marking of the tasks and submission of marks to OCR by 15 May 2016.
- There are no restrictions on computing facilities, hardware or software that may be used.
- All work produced for the tasks **must** be kept secure within centres and not published or distributed externally in any form.
- You **must not** be given, either individually or as a group, any assistance, verbal or written, in the carrying out of the tasks or evidence to produce.
- **Once your tasks have been marked by the centre, they cannot be resubmitted for improvements.**

INFORMATION FOR CANDIDATES

- **Candidates are reminded of the need for good English and clear presentation in their answers. They will be expected to have used software tools, such as spellcheckers, to help achieve this.**

Notice to Candidates

- 1 The work which you submit for assessment **must** be your own.
However, you may:
 - (a) quote from books or any other sources; if you do, you **must** state which ones you have used;
 - (b) receive guidance from someone other than your teacher; if you do, you must tell your teacher, who will record the nature of the assistance given to you.
- 2 If you copy from someone else or allow another candidate to copy from you, or if you cheat in any other way, **you may be disqualified from at least the subject concerned.**
- 3 When you hand in your coursework for assessment, you will be required to sign that you have understood and followed the coursework and portfolio requirements for the subject.

- This document consists of **16** pages. Any blank pages are indicated.

Attempt **all** the tasks.

Task 1 – Spreadsheet [27 marks]

Guy Lines runs a campervan business that hires out vans. He wants a system that will generate quotes for his customers.

He can provide four different types of van. Each Type has a different Cost per day that depends on the season. The year is split into different seasons based upon demand, e.g. van Type A costs £90.00 per day during High season, which is between June and August.

The Cost per day covers insurance for one named driver. If an additional driver is required there is an additional charge of £5.00 per day. An additional driver can only be added for the entire duration of the hire and not for part of it. **Table 1.1** contains a summary of the costs.

Cost per day				Monthly rates	
Type	Low	Mid	High	Month	Season
A	£65.00	£85.00	£90.00	Jan	Low
B	£70.00	£85.00	£100.00	Feb	Low
C	£80.00	£95.00	£120.00	Mar	Low
D	£90.00	£125.00	£140.00	Apr	Mid
				May	Mid
				Jun	High
				Jul	High
				Aug	High
				Sep	Mid
				Oct	Mid
				Nov	Low
				Dec	Low

Additional driver	
£5.00	per day

Table 1.1

Costs worksheet

A worksheet called *Costs* is to be set up to contain the information in **Table 1.1**.

- (a) (i) Print evidence to show that the worksheet is named *Costs*. [1]
- (ii) The worksheet is to be protected so that only the variables can be changed.
Produce annotated evidence to explain how **only** the variables can be changed. [1]
- (iii) Produce annotated evidence to show how Monthly rates can be implemented as a named range called *Season*. [1]

Quotation worksheet

A *Quotation* worksheet is required that will allow the following variables to be entered:

- the collection date;
- the return date;
- the type of van to be selected via a drop-down list;
- an additional driver to be selected via a check box.

Happy Campers	
Collection date	15/07/2016 Friday
Return date	18/09/2016 Sunday
Total days hired	66
Weeks	9
Days	3
Type of van	C <input type="button" value="v"/>
Additional driver	<input checked="" type="checkbox"/>
Quotation	<input type="text" value="£5,895.00"/>

Fig. 1.1

The following items will be calculated:

- the day of the week the van is collected;
- the day of the week the van is returned;
- the total number of days for which the van is out on hire;
- the number of weeks and days that the van is hired;
- the quotation.

There are some restrictions on bookings. Vans must be booked for a minimum period of three days. The maximum period a van can be booked for is 90 days. Validation must be set up to check that the rental period is within range and an appropriate error message must be displayed if it is not.

Create the *Quotation* worksheet. The worksheet will not calculate the quotation figure at this point as you will implement the calculation later.

Iona Dunn and Robyn Brinks phone in and ask for a quote for van Type D with an additional driver between 05/08/2017 and 01/11/2017. Enter these values into the *Quotation* worksheet.

- (b) (i) Print the *Quotation* worksheet on one side of A4 making sure that row and column headings are displayed. This does not need to include the Quotation figure at this point. [1]
- (ii) Produce annotated evidence to explain the validation rule you used and print evidence that the rule has been tested with erroneous data. [2]
- (iii) Produce annotated evidence to show how the controls for the van Type selection and the Additional driver selection have been set up. [2]
- (iv) Print a formulae view of the *Quotation* worksheet making sure that row and column headings are displayed and all formulae are shown in full and are fully readable.

Produce annotated evidence to explain the functions/formulae used so far on the *Quotation* worksheet. [2]

Guy also wants to know how to add a print button and a reset button to the *Quotation* worksheet.

- The print button should print the quotation.
- The reset button should reset the collection date to today's date and clear the return date.

- (c) Produce a help sheet(s) to show Guy how to create the buttons to meet his requirements. [3]

Breakdown worksheet

To produce the quotation, a *Breakdown* worksheet is to be created. All the values within the *Breakdown* worksheet must be calculated automatically. Values within the *Costs* and *Quotation* worksheets must be referenced.

A discount on the Cost per day will be given when a van is hired for a longer period of time.

- Day 21 to Day 41 will get a 25% discount on the Cost per day.
- Day 42 and over will get a 50% discount on the Cost per day.
- No discount is given on Additional driver costs.

Table 1.2 shows the layout to use for the *Breakdown* worksheet.

- No other values/intermediate calculations should be visible.
- The top row with the headings must be visible at all times while scrolling through the table.
- When printed, the worksheet must fit on two sides of A4. The headings for the table must be visible on each printed page.
- Additional driver costs should not be included in the breakdown of the van Cost per day.

Day	Date	Season	Cost per day	Discount	Cumulative cost
1	05/08/2017	High	£140.00	£0.00	£140.00
2	06/08/2017	High	£140.00	£0.00	£280.00
:					
:					
90					

Table 1.2

Blank values should automatically be displayed in the table for all days after the last hire day.

Create the *Breakdown* worksheet and then add a formula to the *Quotation* worksheet to calculate the quotation.

- (d) (i) Print the completed *Breakdown* worksheet for the quote for Iona Dunn and Robyn Brinks. [1]
- (ii) Produce annotated evidence to show how the header row is fixed in place when scrolling through the table. [1]
- (iii) Print a formulae view of the completed *Breakdown* worksheet making sure that row and column headings are present and all formulae are fully readable.
Produce annotated evidence to explain all the calculations that have been used to generate the calculations in **Table 1.2**. [5]
- (iv) Produce annotated evidence to explain the final quotation formula (including any Additional driver costs) added to the *Quotation* worksheet. [1]
- (v) Explain how both relative and absolute addressing have been used within **one** formula within the solution. [1]

Guy decides that September should be changed to High season.

(e) (i) Print the *Quotation* and *Breakdown* worksheets after the change has been made to the *Costs* worksheet. [1]

(ii) Use annotated screenshots to show how **one** calculation is affected by this change. [1]

A test plan is required for the system that has been created.

(f) Complete the test plan in **Table 1.3** to show how three different formulae within the system may be tested. [3]

Test number	Description	Type of test	Input data value(s)	Expected output value(s)
1		Valid		
2		Valid		
3		Valid		

Table 1.3

Task 2 – Graphics and word processing [13 marks]**Logo**

Guy Lines wants to have a business logo. This logo will be used in a variety of situations.

He has the following requirements:

- the logo will be created from scratch;
- the logo will look like a campervan;
- the logo will use just one colour;
- the logo will be produced as a vector image;
- the completed logo will be grouped together;
- the completed logo will be exported as a bitmap file with a transparent background.

(a) Using a computer and suitable software, create the logo.

Use annotated screenshots to show how the logo meets the requirements.

[3]

Newsletter template

Guy wants to send out newsletters to his customers to tell them about special offers. He wants a template to be created that can be used for different editions of the newsletter. The template must meet the following requirements:

- the page layout will be A5 portrait;
- the business name 'Happy Campers' must be present;
- the business logo must be present;
- the business details must be present:
 - address: Lakeside Park, Glenridding, Cumbria CA11 0US;
 - email: HappyCampers@progress-media.co.uk;
 - telephone: 01931 123456.

(b) (i) Produce a hand-drawn design for the layout of the newsletter template.

[1]

(ii) Create and print the template and produce annotated evidence to show how the newsletter template was saved as a template.

[2]

Newsletter edition

Guy wants to send out a personalised newsletter to previous customers for whom he has contact details. The file *mailing.csv* contains the customer data. This edition of the newsletter is to have the following content:

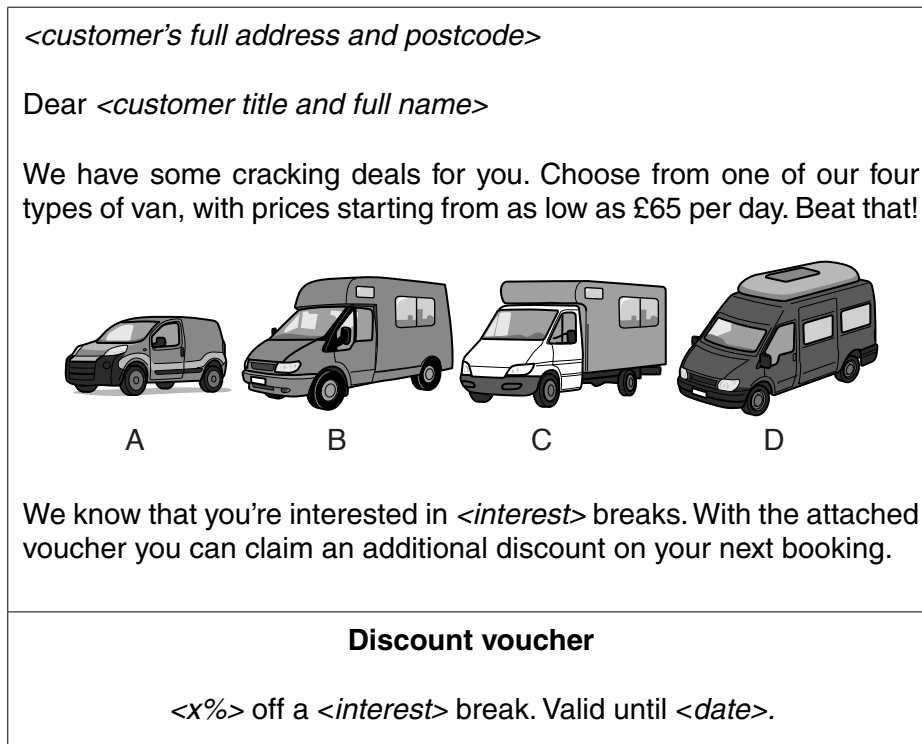


Fig. 2.1

The Discount voucher at the bottom of the newsletter must meet the following requirements:

- the percentage off is dependent upon the type of interest a customer has noted. This is calculated as 5% for weekend breaks, 10% for weekly breaks and 20% for long-term breaks;
- the data source cannot be changed;
- the date on the Discount voucher is changeable. It must be asked for **once** when the mail-merge process is run;
- a watermark of the logo is to appear behind the text in the Discount voucher.

Guy has the following requirements with regard to the printed newsletters:

- newsletters will only be sent to those customers who have opted to receive newsletters;
- these customers must be selected automatically when the mail-merge process is run;
- two newsletters will be printed on each side of A4.

- (c) (i) Produce annotated evidence to explain how Guy's requirements for the printed newsletter have been met. [2]
- (ii) Print all the newsletters that will be sent to customers. [2]
- (iii) Produce annotated evidence to explain how the requirements for the Discount voucher were met. [3]

Task 3 – Website [12 marks]

Guy Lines wants Happy Campers to have an animated graphic for the vans he has on offer. This will be used on the business website.

Animated graphic

The animated graphic must use the four photos that have been provided: *Scene 1.jpg*, *Scene 2.jpg*, *Scene 3.jpg* and *Scene 4.jpg*. The following requirements must be met:

- the graphic should be animated so that it cycles through the four images one after the other;
- there should be some form of fade-out and fade-in transition between each image in the animation;
- the animation should repeat automatically every 20 seconds;
- the business name should be present and clearly visible throughout;
- the business logo (created in Task 2) should be included at the top left of the animated graphic and should be visible throughout.

(a) (i) Produce a storyboard for the animated graphic that would allow a third party to create it. [2]

(ii) Using computer software, create the animated graphic and produce annotated evidence to show how the requirements were met. [3]

Cascading style sheet (CSS) – website layout and appearance

The layout and appearance of the website are to be defined by an external CSS file. The CSS file should meet the following requirements:

- the top of the page should contain a header area 1000 pixels wide by 30 pixels high;
- a title area 1000 pixels wide by 90 pixels high should appear immediately underneath the header area;
- under the title area there should be a navigation area 1000 pixels wide by 30 pixels high;
- under the navigation area there should be an area used for page content that should be 1000 pixels wide;
- the initial background colour for each area is to be black #000000, apart from the page content area that should be light green #F1FFEF;
- the default font should be Arial for all styles. Headings should be set to font size 36 pixels bold and paragraph text should be set to font size 16 pixels.

(b) Create an external CSS and produce annotated evidence to show how the requirements were met. [2]

Website implementation

The pages within the site should contain the following content:

- Home page:
 - the 'Happy Campers' name;
 - the business address – Lakeside Park, Glenridding, Cumbria CA11 0US;
 - a written introduction to the business and its services;
 - a photograph of the owner Guy Lines.
- Gallery page:
 - the animated graphic created of the four different types of van;
 - a written description of each type of van.
- Contact page:
 - a request form that will allow potential customers to request further details by filling in the following: forename, surname, email address, type of interest (weekend hire, weekly hire, long-term hire);
 - the type of interest must be selectable from a drop-down list;
 - a submit button that, when clicked, should email the contents of the form to HappyCampers@progress-media.co.uk.

Each page within the site should:

- use the external CSS;
- include the business name and logo in the title area;
- include a completed navigation area that provides links to the other pages in the site.

- (c) (i)** Produce the website and provide printed evidence of the pages created. **[3]**
- (ii)** Produce annotated evidence to explain how the requirements for the request form on the contact page were met. **[2]**

Task 4 – Database [28 marks]

Guy Lines wants a database system to be created that can be used to record customers' bookings.

Database structure

CUSTOMER details have been provided in the file *mailing.csv*. VAN details have been provided in the file *van.csv*. BOOKING details have been provided in the file *booking.csv*. These data files should be used to create a relational database. Import the data and select suitable data types for the fields in the tables.

- (a) (i) Print evidence of the relationships created between the tables in the database and clearly identify primary and foreign keys. [1]
- (ii) Print evidence of the structure of each of the three tables and print evidence of the data in the tables that has been imported. [3]

Customer form

Guy wants a customer form that can be used for viewing, adding or modifying customer records. He also wants to be able to see details relating to the customer's current bookings on this form. Details for the bookings are for reference purposes only. This means they should be read only and not allow additions or deletions to be made.

Guy has specified the following house style for **all** forms in the database:

- headings in Arial, 18pt, black, bold;
- sub-headings in Arial, 14pt, black, bold;
- any text which is not a heading or a sub-heading should be in Arial, 12pt;
- form background colour RGB (241, 255, 239) (Hex code #F1FFEF).

The customer form will contain the following information:

- customer details: CustomerID, Title, Forename, Surname, Telephone, Email, Interest, Contact status, Address 1, Address 2, Address 3, Postcode;
- booking details (for all bookings made by the customer): BookingID, Booking date, Collection date, Return date, Type, Registration.

The form should meet the following requirements:

- the main heading should be 'Customer Form';
- sub-headings should be used on the form to group related fields together;
- default navigation buttons and record selectors should be removed;
- customised buttons should be added for record navigation, addition and deletion.

- (b) (i) Print the completed customer form for Ms Jessica Monteith. [1]
- (ii) Produce annotated evidence to explain how the requirements for the customer form were met. [3]

Non-payment report

Customers should pay for their bookings at least six weeks before the collection date. Guy has been rather disorganised and he still has to chase payment from some of his customers who have completed their bookings.

Guy wants a report to be generated that will show the details for all bookings that meet this non-payment criterion, so that he can then contact the customers concerned to remind them of the need to pay.

He wants the report to be grouped by customer and the details for each customer must start on a new page. The BookingID, Booking date and Collection date must be displayed for each booking.

- (c) (i) Create and print a report that shows the details for all bookings that have not been paid at least six weeks prior to the collection date. [1]
- (ii) Produce annotated evidence to explain how the report was created. [1]

Booking form

Guy wants a booking form that will enable him to process bookings. He wants to be able to enter:

- the collection date for the booking;
- the return date for the booking (which must be validated as after the collection date);
- the van to be booked (selected from a drop-down list, with sufficient information to identify the van type and registration);
- the customer who is making the booking.

The form should meet the following requirements:

- a title of 'Happy Campers – Bookings';
 - the booking date should automatically default to the date on which the booking is being made;
 - the payment field should default to False;
 - a van can only be hired out to one customer on a given day;
 - the booking form should have a 'Process Booking' button;
 - when the 'Process Booking' button is clicked, valid bookings should be processed and added to the BOOKING table.
- (d) (i) Print evidence of the completed booking form. [1]
- (ii) Produce annotated evidence of the methods used to validate the return date and print evidence of the rule being tested with erroneous data. [1]
- (iii) Produce annotated evidence to explain how the requirements for the booking form were met. [5]

Main menu

A main menu form is required to provide an interface through which users can access the different parts of the system. It should contain a heading, clear instructions and links to the components that have been developed.

- (e) (i) Print evidence of the completed main menu form. [1]
- (ii) Produce annotated evidence to explain how navigation to **one** of the components in the system was implemented. [1]

Archive routine

Guy wants all bookings where the return date of the hire period was over two years ago to be archived.

- An ARCHIVE table is required to store relevant details of the booking. Sufficient details to identify the customer and the van related to the booking must also be stored in the archive.
- When the 'Archive' button is clicked, the booking details should be archived to the ARCHIVE table and then the booking details should be removed from the BOOKING table.
- An 'Archive' button to automatically run the archive routine should be added to the main menu.

- (f) Produce printed evidence of the data tables before and after the routine is run to prove that it works correctly.

Produce annotated evidence to explain how the routine created meets the requirements. [4]

User guide

Guy wants a user guide to enable employees to use the database. The user guide must contain instructions to:

- load the database;
- navigate between the system components;
- view customer details;
- produce and print reports for customers who owe payments;
- process bookings;
- archive old bookings.

- (g) Produce and print a user guide that will meet Guy's requirements. [5]

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