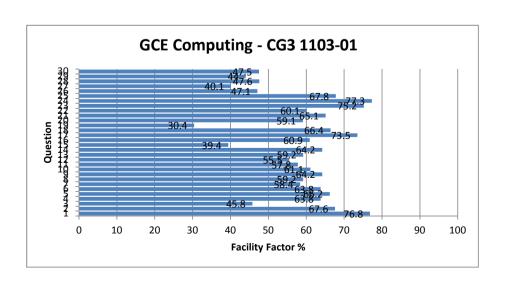# WJEC 2014 Online Exam Review

GCE Computing - CG3 1103-01

All Candidates' performance across questions

Question Title	N	Mean	S D	Max Mark	F F	Attempt %	
1	910	4.6	1.2	6	76.8	100	
2	904	1.4	0.7	2	67.6	99.3	
3	874	0.9	0.7	2	45.8	96	
4	893	3.8	1.6	6	63.8	98.1	
5	894	1.3	0.8	2	66.2	98.2	
6	846	1.9	1.2	3	63.8	93	
7	897	1.2	0.8	2	58.4	98.6	
8	873	1.8	1	3	59.2	95.9	
9	882	1.3	0.9	2	64.2	96.9	
10	900	1.2	0.7	2	61.1	98.9	
11	884	1.7	1.1	3	57.8	97.1	
12	901	1.7	0.9	3	55.5	99	
13	901	1.2	0.8	2	59.2	99	
14	882	2.6	1.3	4	64.2	96.9	
15	882	1.2	1.1	3	39.4	96.9	
16	877	0.6	0.5	1	60.9	96.4	
17	864	2.9	1.2	4	73.5	95	
18	774	2	1.2	3	66.4	85	
19	843	0.3	0.5	1	30.4	92.6	
20	846	0.6	0.5	1	59.1	93	
21	902	0.7	0.5	1	65.1	99.1	
22	892	3.6	1.6	6	60.1	98	
23	875	2.3	1	3	75.2	96.2	
24	884	2.3	0.9	3	77.3	97.1	
25	901	3.4	1.2	5	67.8	99	←
26	879	2.8	2.2	6	47.1	96.6	←
27	849	1.2	1.1	3	40.1	93.3	
28	854	2.9	1.6	6	47.6	93.8	
29	807	0.4	0.5	1	44	88.7	
30	890	5.2	2.5	11	47.5	97.8	←

GCE Computing - CG3 1103-01

2 5 Many organisations carry out *disaster planning* for their computer systems.

Explain why disaster planning is very important and describe elements of disaster planning which can allow an organisation to recover quickly following a disaster.   [5]

Q25 Example 1

Disaster planning is used to minimise financial losses when a disaster happens however some money and customer good will will be lost.

For a disaster such as a power cut, a company should purchase an uninterruptable power supply (UPS). This ensures e.g. servers will shutdown correctly.

Staff must have sufficient training to react during a disaster and to recover quickly afterwards.

Backups should be stored offsite (in case of fire, flood etl.) These can then be restored after a disaster, so little ~~amo~~ to no data is lost.

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These can then be restored after a disaster, so little ~~and~~ to no data is lost.

Q25 Example 2

Disaster planning is very important because organisations can lose a lot of money if any important files are lost. One element of disaster planning is backups, data should be backed up regularly so that if a disaster occurs then only the most recent data will be lost. Another element of disaster planning that will allow them to recover quickly is storing these backups in a secure, off-site location so that if there is a fire for example, the backups will not be destroyed along with the originals.

Q25 Example 2

Disaster planning is very important because organisations can lose a lot of money if any important files are lost. One element of disaster planning is backups, data should be backed up regularly so that if a disaster occurs then only the most recent data will be lost. Another element of disaster planning that will allow them to recover quickly is storing these backups in a secure, off-site location so that if there is a fire for example, the backups will not be destroyed along with the originals.

Disaster planning is important so data is not lost.

To prepare for any disasters to human suchas fire, earthquakes, tsunamis, terrorist attack. The organisation must back up the data and store it off - site so it will be safe.

Q25 Example 3

Disaster planning is important so data is not lost.

To prepare for any disasters to human suchas fire,
earthquakes, tsunami's, terrorist attack. The
organisation must back up the data and store it
off-site so it will be safe.

| 2 | 6 | The sales director of a company wishes to compare the sales (in thousand pounds) achieved by her sales staff in the previous month.

Design an algorithm using pseudo-code with the following inputs:
- the number of sales staff
- the sales figure for each member of staff

The algorithm should output:
- the mean of the sales figures
- the values of the sales figures which are below the mean
- how many sales figures are below the mean
- the lowest sales figure

For instance, if the inputs are:

6
45   55   65   65   10   60

the outputs should be similar to:

Mean = 50
Values below the mean = 45 10
Total number of values below the mean = 2
Lowest sales figure = 10   [6]

```
Numberog
NumberOf Stags  AS    Integer
Sales  AS  Integer  Array
Total  AS  Integer
Mean  AS  Integer
Min  AS  Integer
Total  = 0
Min  = 999
INPUT  NumberOf Stags
FOR i  AS  Integer  = 1 TO NumberOf Stags
    INPUT  Sales [i]
    Total  =  Total + Sales[i]
END FOR
Mean  =  Total / NumberOf Stags
BelowMean  AS  Integer
BelowMean = 0
OUTPUT 'Mean = ' , Mean
FOR i  AS Integer  = 1 TO NumberOf Stags
    IF  Sales [i] < Mean
        OUT|
OUTPUT 'Values below the
        mean =
FOR i  AS  Integer  =1 TO NumberOf Stags
    IF  Sales [i] < Mean
        OUTPUT  Sales [i]
        BelowMean = BelowMean + 1
    END IF
    IF Sales [i] < Min
        Min = Sales [i]
    END IF
END FOR
OUTPUT 'Total number of values below
        the mean =' , BelowMean
OUTPUT 'Lowest sales figure', Min
```

```
Numbers
Number Of Stage  AS    Integer
Sales  AS   Integer  Array
Total   AS   Integer
Mean    AS    Integer
Min    AS    Integer
Total  = 0
Min    = 999
INPUT   NumberOf Stass
FOR  i  AS   Integer  = 1 TO NumberOf Stass
    INPUT   Sales [i]
    Total   =  Total  +  Sales[i]
END FOR
 Mean  =  Total / NumberOf Stass
Below Mean  AS   Integer
Below Mean = 0
OUTPUT 'Mean = ' , Mean
FOR i  AS Integer = 1 TO NumberOfStass
   IF  Sales [i] < Mean
        OUTI
OUTPUT 'Values below the
          mean =
FOR i  AS  Integer = 1 TO NumberOf Stass
   IF   Sales [i] < Mean
       OUTPUT   Sales [i]
       Below Mean = Below Mean + 1
   END IF
   IF Sales [i] < Min
       Min =  Sales [i]
   END IF
END FOR
OUTPUT  'Total number of values below
          the mean = ', Below Mean
OUTPUT  'Lowest sales figure', Min
```

Q26 Example 2

Define Stage No.   Define i = 1   Define Mean   Define Lowest = 9999
Define Values Below Mean   Define No. Values Below Mean

Input <number of sales stage>
Stage No. = <number of sales stage>
~~i = Stage No.~~
For i = 1 ~~to Stage No.~~
   Input <Sales figure>
Mean = Mean + <Sales figure>
if Lowest = > <sales figure>
   then Lowest = <sales figure>
      end if
if i = Stage No.
   then Mean = Mean / Stage No.
~~else i = i + 1 end for~~
end for
else i = i + 1

Output Mean
Output Values Below Mean
Output No. Values Below Mean
Output Lowest

Define Stage No.   Define i=1   Define Mean   Define Lowest = 9999
Define Values Below Mean   Define No.Values Below Mean

Input <number of solar stage>
Stage No. = <number of solar stage>
~~i = Stage No.~~
For i = 1 ~~to Stage No.~~
  Input <Solar figure>
Mean = Mean + <Solar figure>
if Lowest = > <solar figure>
  then Lowest = <solar figure>
     end if
if i = Stage No.
  then Mean = Mean / Stage No.
  ~~else i = i+1 end for~~
end for
else i = i + 1

Output Mean
Output Values Below Mean
Output No.Values Below Mean
Output Lowest

Set number of stass
Set arraystass 0 to 5
Set Mean
Set below mean
Set Total below mean
Set lowest

Start

input numberof stass = 6
input array stass
       Pos0 = 45
       Pos1 = 55
       Pos 2 = 65
       Pos 3 = 65
       Pos 4 = 10
       Pos 5 = 60

Mean = Pos0 + Pos1 + Pos $\overset{2}{3}$ + Pos $\overset{3}{4}$ + Pos $\overset{4}{5}$ +
    Pos 5 ÷ Number of Stass

below mean = arraystass 0 to 5 > Mean

Total below mean = number of items below
                       mean

Lowest = Search array for lowest value.

Output Mean
Output below mean
Output total below mean
Output lowest

Set number of stass
Set arraystass 0 to 5
Set Mean
Set below mean
Set Total below mean
Set lowest

Start

input numberof stass = 6
input array stass
          Pos0 = 45
          Pos1 = 55
          Pos 2 = 65
          Pos3 = 65
          Pos4 = 10
          Pos5 = 60

$Mean = Pos0 + Pos1 + Pos^2 3 + Pos^3 4 + Pos^4 5 +$
          Pos 5 ÷ Number of Stass

below mean = arraystass 0 to 5 > Mean

Totalbelow mean = number of items below
                                          mean

Lowest = Search array for lowest value.

Output Mean
Output below mean
Output total below mean
Output lowest

3 0 *Nu Stuff UK* has hundreds of high-street clothes shops around the country.

It is developing a new computer system which will involve each of its shops having a number of in-store computers which customers can use to look at the latest clothes, check if they are in stock and find out more about them.

The team developing this system need to consider the best type of human computer interface (HCI) for this application. The system needs to be easy to use in a possibly noisy and crowded environment in the shop.

Discuss the different types of HCI (both hardware and software) which would be suitable in this case and those which would be less suitable. [11]

The most suitable HCI in this ~~case~~ case would be a touch screen with a GUI (graphical user interface). A touch screen would allow the user the ability to intuitively use the system whilst not taking up space in the crowded environment. A touch screen would also allow the customer ~~employees~~ to use multi-gesture shortcuts in order to intuitively use the system. In this case a GUI would be best because it can easily display ~~pictures~~ images and can be very easy to learn for customers that have no experience. Customers would also be used to ~~saying~~ using GUI'S on mobile devices and PC'S so the learning curve is not as steep.

Speech recognition would not be suitable because of background noise in the store, as well as this it would not probably struggle with having many different dialects being used. The In spite of this speech recognition would be the best option for those with physical disabilities.

Handwriting recognition would also be an unsuitable interface, it would require more powerful computers and would struggle with the variety of different handwriting as usually the system learns but would be unable to in this case.

A keyboard and mouse with a WIMP (windows, icons, menu, pointer) interface may be suitable as it is intuitive and easy to use. The problem with a mouse and keyboard is that customers may break them or disconnect them and they take up more room than a touch screen.

A console window would not be appropriate as it is unable to display images and is not very easy to use for inexperienced customers. Although the computer running console could be cheaper.

Forms dialogue may be suitable as an interface as it is very intuitive and easy to use for inexperienced customers. The problem with forms dialogue is that although it is less resource intensive it is not as aesthetically pleasing than a full graphical user interface which may be important to customers.

In conclusion, although a more expensive option a touch screen with a GUI designed to be used with a touch screen (Large icons, gesture compatability, on screen keyboard) is the most easy to use, takes up the least space and is not affected by noise.

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Q30 Example 2

A graphical user interface would be more appropriat for this application beacose it is intuative, as offeres help functions for example may tell shopper how to use the system. A graphical user interface also uses windows, icons, menues and pointer. This makes the system transparent beacose icons tell the user what application are for example a search icon may have a magnifying glam icon. A GUI is also user friendly ~~intuative~~ beacose it is simple to use with clear navigation menues, the GUI system will also be simalar to ones which customes have already experinced, thus is important beacose the system must be easy to use as it to hard to concentrate in the busy enviroment of Nu Stuff Uk store which is noisy and crowded. The system will use pointers ~~devices~~, supported by a GUI for clicking on event driven icons and to narrow down search option. An alternative software based HCI would be a forms dialog system, this would be appropriat as it limites user input and

could be used to narrow a clothing query down based on customer input. The system is intuitive as the cursor moves from input box to input box although some validation such as presence checks may be required. With a forms dialog system input is ~~direct into drop down menues~~ typed into fields on screen. Such as combo boxes and drop down menues. This would be appropriat as it is easy to use and understand making it simple and easy to use in a crowded noisy shop enviroment. This is more appropriat than a speech recognition system which would not work with all the background noise of a noisy NU Stuff UK store.

Input into the system for both GUI and forms dialog would be via touch screen because it is compact unlike a mouse and keyboard so could be used in a crowded shop. A touch screen is also intuative to use making selections + input easy for the customer. Touch screens can also function as an output device saving space as no moniter is required. the devices can also be built into walls at the NU Stuff UK stores saving more space and not getting in the way at crowded stores. Output via speach synthesis etc. would be innapropriat because of the noise enviroment of the store so it could not be heard. Input via handwrighting would also be innapropriat because all handwrighting differes and it takes a long time for a device to be trained to cope with this, also poor handwriting may also not be recognised. This would be difficult to do in a crowded store if people want around for a slow or poor writer. Small stylus used may also be lost and if droped may be difficult to pick up in a crowded store. Input via an on screen (on touch screen) key board would be appropriot because it saves

space as a traditional keyboard is not used. Typing is also more easily understood by a computer so less processing power would be required. Typing is also quicker so would save time, as required in a crowded store were many people may want to use the computer system.

A text f based interface requiring input via command prompt would be innapropriat beacose it is difficult to understand and commands must be learnt something not possible in a crowded store were many costomes will be novice uses, also the noise in said store is not condusive to the learning of such complex commands.

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Some of the different types of HCI that could possibly be used are; graphical user interfaces, text based interface etc.

~~Sut~~ Suitable hardware ~~of~~ or software that could be used could be;

Touch screen as this can make everything quicker than typing in commands.

Graphical user interface would be good as you can visually see where you are going or looking at & have the chance to use shortcuts.

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Q30 Example 3

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