National 5
Coursework
Assessment Task

National 5 Computing Science
Assignment
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This document provides information for teachers and lecturers about the coursework component of this course in terms of the skills, knowledge and understanding that are assessed. It **must** be read in conjunction with the course specification.

Valid for session 2018-19 only.

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Computing Science assessment task: evidence checklist

Task 1	**Evidence**	
Part A		
1a	Completed task 1 sheet showing data dictionary	☐
Part B		
1b	Printout or screenshots of database table showing correct validation has been set up for Vlogger table	☐
Part C		
1c (i)	SQL statement to show the usernames and video names of all videos with a rating greater than 3.	☐
	Printout of query results	☐
1c (ii)	SQL statement to delete unwanted “Slime” video	☐
	Printout of Video table (after the deletion)	☐
Task 2	**Evidence**	
Part A		
2a	Completed task 2 sheet showing the program analysis	☐
Part B		
2b	Printout of your program code	☐
2c	Complete task 2 sheet showing the test table	☐
2d	Printout evidence of test runs using the supplied student names	☐
2e	Completed task 2 sheet showing evaluation	☐
Task 3	**Evidence**	
3a	Completed task 3 sheet showing two functional requirements	☐
3b	Printout evidence of HTML with internal CSS file showing new page	☐
	Printout of web page as viewed in a browser	☐
3c	Completed task 3 sheet showing the description of two tests	☐
3d	Completed task 3 sheet showing evaluation	☐

Please follow the steps below before handing your evidence to your teacher or lecturer:

- Check you have completed all parts of tasks 1, 2 and 3
- Label any printouts/screenshots with the task number (for example 1b, 2b)
- Clearly display your name and candidate number on each printout

Task 1: database design and development (part A)

Video bloggers (vloggers) create videos to upload to social media websites. Mirren promotes vloggers across Scotland. She keeps a record of vloggers and the details of their videos. Mirren names each video and rates them on a scale of 1 to 5 (one being the worst and five being the best). Videos may be up to 300 seconds in length.

Mirren decides to store these details in a database. The completed analysis of inputs is shown below.

Vlogger details:	**Video details:**
vloggerID forename surname username expertise	videoID vloggerID videoName duration dateCreated content rating

1a Complete the data dictionary for the Video entity.

(5 marks)

Entity name: Video					
Attribute name	**Key**	**Type**	**Size**	**Required**	**Validation**
videoID		number		Y	
vloggerID		number		Y	existing vloggerID from Vlogger table
videoName		text	30		
duration				Y	
dateCreated		date		Y	
content		text	40	Y	
rating		number		Y	

- Check your answers carefully, as you cannot return to part A after you hand it in.
- When you are ready, hand part A to your teacher or lecturer and collect part B.

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Task 1: database design and development (part B)

1b Your teacher or lecturer will provide you with a relational database file containing two empty tables.

Using the data dictionary below complete the Vlogger table by adding the validation.

(2 marks)

Entity name: Vlogger					
Attribute name	**Key**	**Type**	**Size**	**Required**	**Validation**
vloggerID	PK	number		Y	
forename		text	20	Y	
surname		text	20	Y	
username		text	6	Y	Length=6
expertise		text	15	Y	Restricted choice: Programming, Gaming, Baking, Crafts, Makeup, Clothes

Print evidence to show that you have added both validations to the Vlogger table.

- Check your evidence carefully, as you cannot return to part B after you hand it in.
- When you are ready, hand part B to your teacher or lecturer and collect part C.

Task 1: database design and development (part C)

1c Your teacher or lecturer will provide you with a completed database file including data on vloggers and videos.

(i) Mirren wants to advertise the best videos.

She wants to display the username and videoName of all videos with a rating greater than 3.

Implement the SQL statement that will output usernames and videoNames from the Vlogger and Video tables where the rating is greater than 3.

Print evidence of your SQL statement and the output from the query after it has been implemented.

(4 marks)

(ii) One of the videos called "Slime" contains a recipe for slime which does not work. It should be removed from the database.

Implement the SQL statement that will delete the Slime video which has a videoID of 3.

Print evidence of your SQL statement and the Video table after the SQL statement has been implemented.

(2 marks)

Task 2: software design and development (part A)

Logan is a technician who has to generate usernames for a school's Wi-Fi service.

Logan wants to write a program that will automatically generate unique usernames for students. The usernames have to be six characters long. The program should generate and display a list of student usernames.

Program analysis

The program will ask how many usernames are to be generated. For each username, the first three letters of the student's first name will be entered and then combined with a random ending from the list below.

The program stores five endings:

ing
end
axe
gex
goh

For a student with the first name David the technician would enter Dav. The program will generate the username by joining Dav to one of the endings listed above. For example the username generated could be Daving.

2a Complete the table by filling in the missing input, process and output.

(3 Marks)

Input	
1.	
2.	Enter the first 3 letters of the student name
Process	
1.	Check length of partial student name
2.	
3.	Add the partial student name with the randomly generated ending from the stored list
Output	
1.	

- Check your answers carefully, as you cannot return to part A after you hand it in.
- When you are ready, hand part A to your teacher or lecturer and collect part B.

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Task 2: software design and development (part B)

Program design

Main Steps: Pseudocode

1. Store the endings
2. Enter the number of students
3. Start fixed loop for each student
    4. Enter first three letters of student's name
    5. Generate random number
    6. Generate username
    7. Display the username
8. End Loop

REFINEMENTS

4.1 Start conditional loop

4.2 Get the first three letters of student's name

4.3 If the length of the name is not equal to 3 then

4.4 Display an error message

4.5 End If

4.6 Repeat until the name entered is 3 characters long

6.1 If the first random number was generated add the first stored ending to the end of the first three letters of the student's name

6.2 If the second random number was generated add the second stored ending to the end of the first three letters of the student's name

6.3 If the third random number was generated add the third stored ending to the end of the first three letters of the student's name

6.4 If the fourth random number was generated add the fourth stored ending to the end of the first three letters of the student's name

6.5 If the fifth random number was generated add the fifth stored ending to the end of the first three letters of the student's name

2b Using the program design and refinements, implement the program in a language of your choice. Ensure the program matches the pseudocode provided.

(15 marks)

Print evidence of your program code.

2c Your program should be tested to ensure it will only accept 3 characters.

Complete the test table below

(2 marks)

Type of test	User input	Expected result	Actual result
Normal		Input accepted	Printout of final output to show that input is accepted.
Exceptional		Error message displayed	Printout to show that an error message is generated.

2d Test your program using the following student names.

Chris
Christina
Christopher
Chrethe
Chrisoula
Christie

Provide evidence of the inputs and outputs to show that you have completed the test.

(1 mark)

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2e With reference to your code and testing, evaluate your own program by commenting on the following:

Efficient use of programming constructs in your code. **(1 mark)**
Robustness of your completed program **(1 mark)**
The readability of your code **(1 mark)**

Evaluate the fitness for purpose of the solution

(1 mark)

Candidate name_____ Candidate number_____

Task 3: web design and development

Too Good to Throw Away is a charity clothes shop. They would like a web page to encourage donations of clothes.

It will have a:

- heading with the title "Too Good to Throw Away!"
- graphic of clothes
- coloured section with a subheading entitled "What we need".
- numbered list (from 1 to 5) detailing the items the charity shop would like donated
- coloured section with a subheading titled "What we have in stock"
- video showing the current stock.

3a State **two** functional requirements for this web page.

Functional requirement 1 **(1 mark)**
Functional requirement 2 **(1 mark)**

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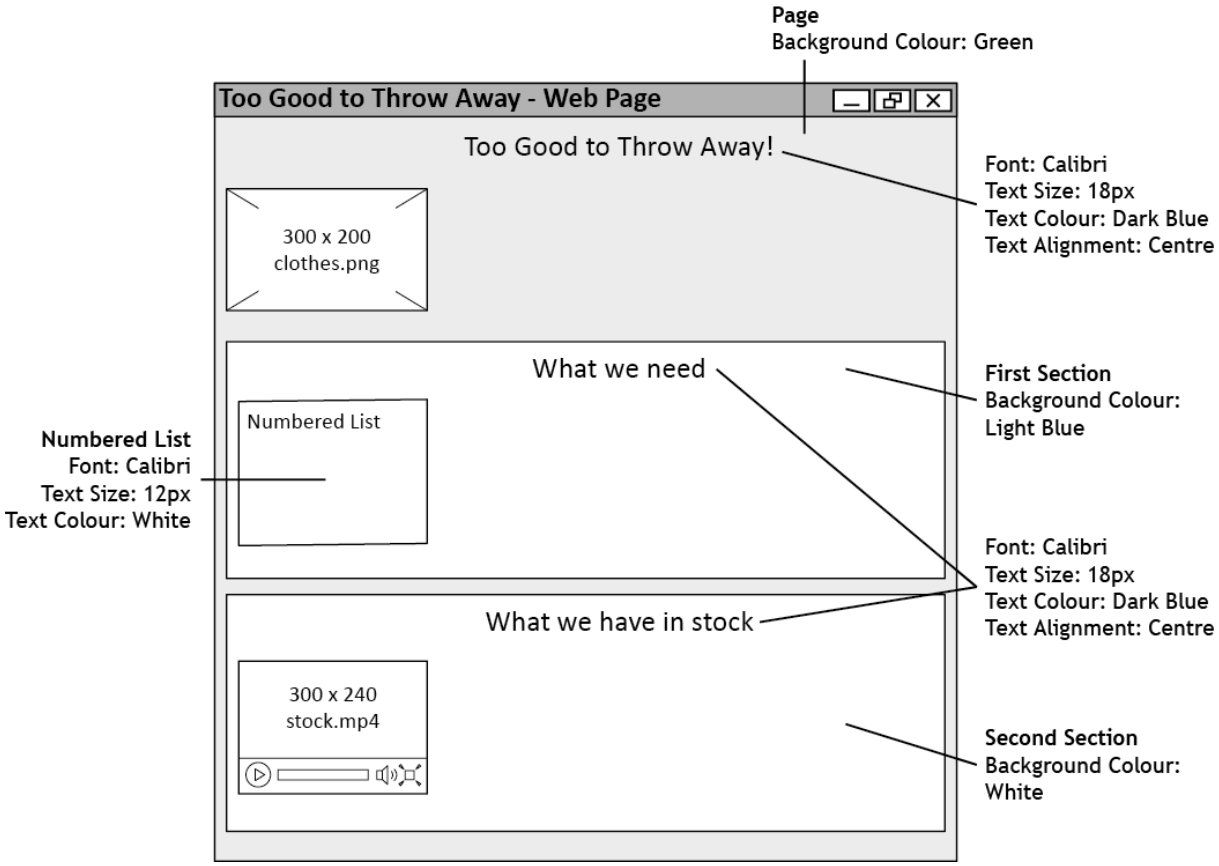
3b. The wireframe design of the page (annotated with required styles) is shown below.



Your teacher or lecturer will provide you with the following two files:

- clothes.png
- stock.mp4

The following five items should be listed under the heading 'What we need'.

1. School Uniforms
2. Blazers
3. Gym Clothes
4. School Bags
5. Black Shoes

Implement the wireframe design using HTML and internal CSS.

(7 marks)

Print evidence of the following:

- HTML with internal CSS
- Web page as viewed in a browser

3c Describe two tests that could be performed on this web page.

Test 1 **(1 mark)**
Test 2 **(1 mark)**

3d With reference to your solution, evaluate your web page by commenting on the following:

Fitness for purpose **(1 mark)**

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