National 5 Computing Science Assignment
Finalised Marking instructions

Marking instructions

General marking principles

Always apply these general principles. Use them in conjunction with the specific marking instructions, which identify the key features required in candidates' responses.

(a) Always use positive marking. This means candidates accumulate marks for the demonstration of relevant skills, knowledge and understanding; marks are not deducted for errors or omissions.

(b) If a candidate response is not covered by either the principles or specific marking instructions, and you are uncertain how to assess it, you must seek guidance from your team leader.

(c) Award marks regardless of spelling, as long as the meaning is unambiguous and does not result in a syntax error in implemented code.

(d) For design and implementation tasks, a sample response may be shown in the detailed marking instructions. This will not be the only valid response. You must use the detailed marking instructions and additional guidance to ensure that you consider alternative approaches and nuances of different programming languages. If in doubt you should refer to your team leader.

(e) A correct response can be negated if the candidate includes an extra, incorrect response which demonstrates they do not know the correct answer. For example, in a state question where the only correct answer is 'white' and the candidate answers 'white orange', the mark should not be awarded.

(f) If a candidate puts a score through their entire response to a question and makes a further attempt, you should only mark the further attempt. If no further attempt is made and the original is legible, you should mark the original response.

(g) In the detailed marking instructions, if a word is underlined then it is essential; if a word is in brackets() then it is not essential. Words separated by / are alternatives.

Specific marking instructions

Task	Expected response		Additional guidance	Marks available	
1	**Software design and development**				
1a	1 mark each for: ♦ Input inside loop ♦ Conditional loop used ♦ Correct loop conditions		Condition could be implemented in a variety of ways.	3	Design (3)
1b	Initial Inputs	♦ Starting miles ♦ Number of charging stations		1	Implementation (15)
	Two fixed loops, each for number of charging stations entered			1	
	Input Validation (rating)	Conditional loop with correct condition	Valid inputs are 7, 22, 50	1	
		Input of rating within loop	Award 1 mark if implemented without input validation loop	1	
		Error message displayed inside loop		1	
	If statement	If structure matches design (else if of nested ifs)	Assignments 7 – 0 22 - 0.005 50 – 0.01	1	
		If conditions correct		1	
		Price per mile assigned correctly		1	
	Calculations	Calculate and store miles travelled in an array	Only miles travelled data should be stored in the array	1	
		♦ Input of currentMiles in loop ♦ Store new startmiles		1	
		Calculate and store cost of each journey stage in an array	Only journey stage data should be stored in the array	1	
	Both running totals calculated correctly within the second loop			1	
	Display each journeyStage cost			1	
	Display total stage cost rounded to 2 decimal places			1	
	Display total miles with message		Concatenation is not required	1	

Task	Expected response	Additional guidance	Marks available	
1	**Software design and development**			
1ci	Printed evidence of test run showing correct output	**Output:** (Stage 1 cost =) **0.6** (Stage 2 cost =) **0.91** (Total cost =) **1.51** Total miles = **211** Note that message for total miles may change. The first three outputs do not require a message.	1	Testing (3)
1cii	One mark each for: ♦ Journey stage costs ♦ Total miles and Total cost	Journey stage 1 cost = **0** Journey stage 2 cost = **-5.5** Total cost = **-5.5** Total miles = **-200**	2	
1ciii	One mark for: The miles at each stage should be validated to ensure its larger than the previous mileage.		1	Evaluation (4)
1d	Evaluation of the following for: (Efficiency) 1 mark: ♦ One efficiency or one inefficiency in own program code (Robustness) 1 mark: ♦ Program is robust or not, including example from own program code (Readability) 1 mark: ♦ Rreadability — comment on one aspect of readability in the candidate's own code	Efficiency examples could include comparison of: ♦ array vs multiple variables ♦ nested ifs vs individual ifs ♦ use of a loop vs replication of code Robust examples might refer to: ♦ input validation of kw rating ♦ lack of validation for other inputs ♦ current mileage potentially being incorrect Evaluation of readability must contain an element of evaluation rather than simple statements of terms. For example "I have used white space to highlight structures in my program" not "I have used white space". The candidate's code must also show evidence of this for a mark to be awarded.	3	

Task	Expected response	Additional guidance	Marks available	
2	**Database design and development**			
2a	One mark for correct staff details: ♦ Email (address) ♦ Department One mark for correct problem details: ♦ ProblemID ♦ Completed ♦ (Email address)	Names given to staff and problem details could differ from bullet list. Allow email address to be included in the problem details as this is how the tables will be implemented.	2	Analysis (2)

2b	One mark each for identifying:
	
	♦ Both Primary Keys
	♦ The Foreign key
	♦ (range:) >=1 <=4
		PK
		  Staff.email
		  Problem.problemID
		
		FK
		  Problem.email
		
		If the range includes OR do not award a mark.
		
		Do not allow restricted choice instead of range
			3	Design (3)

Task	Expected response	Additional guidance	Marks available	
2	**Database design and development**			
2c	One mark for: Evidence that the restricted choice for the department field has been implemented.		1	Implementation (8)
2di	One mark each for: ♦ `UPDATE Staff SET department = "management"` ♦ `WHERE email = "eliv123@email.net";`		2	Implementation (8)
2dii	One mark each for: ♦ `SELECT forename, surname, description FROM Staff, Problem` ♦ `WHERE Staff.email = Problem.email` ♦ `AND dateRaised = 07/07/2022` ♦ `AND completed = False/No/0` ♦ `ORDER BY rating (ASC);` Do not award a mark if SQL created by application: MS Access example SELECT Staff.Forename, Staff.Surname, Problem.description FROM Staff INNER JOIN Problem ON Staff.Email = Problem.Email WHERE (((Problem.dateRaised)=#2/2/2023#) AND ((Problem.completed)=No)) ORDER BY Problem.rating;	SELECT - order of fields may be different from that shown The order of the conditions in the WHERE clause is not important Note: SQL dates are written in a variety of formats, for example 2022-07-07	5	Implementation (8)
2ei	One mark for: ♦ The statement would delete all of Fiona's problems with a rating of 1		1	Evaluation (2)
2eii	One mark for ♦ The problemID = 106 should be used as the search criteria		1	Evaluation (2)

Task	Expected response	Additional guidance	Marks available	
2	**Database design and development**			
2c	One mark for: Evidence that the restricted choice for the department field has been implemented.		1	Implementation (8)
2di	One mark each for: ♦ `UPDATE Staff SET department = "management"` ♦ `WHERE email = "eliv123@email.net";`		2	Implementation (8)
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2ei	One mark for: ♦ The statement would delete all of Fiona's problems with a rating of 1		1	Evaluation (2)
2eii	One mark for ♦ The problemID = 106 should be used as the search criteria		1	Evaluation (2)

Task	Expected response	Additional guidance	Marks available	
3	**Web design and development**			
3a	Functional requirements could include any two of the following for 1 mark each: The website should: ♦ display the company logo ♦ display the company name ♦ display the company address ♦ display the company telephone number ♦ display information feeding products ♦ include a external link to recipes ♦ display information on furniture products ♦ display an interactive photo ♦ display information about toys ♦ display information about gifts ♦ show a video of a toy in use	Some detail required so "display photo", "display text" would not be clear enough for a mark Answer could describe "information" as images, text, sound or video	2	Analysis (2)

Task	Expected response	Additional guidance	Marks available	
3	**Web design and development**			

3b	Using the printout of the babyshop HTML file, confirm the following for 1 mark each:
	
	HTML
	♦ Feeding text: <h1> and <p>
	♦ Baby bottle image
	♦ Bullet point list
	♦ NHS external link within list
	
	CSS
	♦ Three colour changes
	  o Page Background - palegreen (#98FB98)
	  o Top section - lightyellow (#FFFFE0)
	  o Other sections - lightblue (#ADD8E6)
	
	♦ Images sized
	  o Logo - 136px by 648px
	  o Other images - 320px by 240px
	
	♦ Text changes
	  o Font – calibri (all text)
	  o Colour- darkblue (#00008B) (all text)
	  o Paragraphs - size 14px (14pt)
		Baby bottle image – babyBottle.jpg
		Bullets from design
		
		• Baby bottles
		• High chairs
		• Silicone plates and bowls
		• Bibs
		• Solid food recipes
		
		CSS can be inline, internal or external
		
		Images may be resized using HTML attributes
		Logo graphic is "babylicious.png"
		
		Other five images are:
		♦ feeding
		♦ furniture
		♦ three toys
		
		Allow text to be sized in body or html elements.
			7	Implementation (8)

3c	One mark for adding required HTML for:
	♦ calming music section:
	  o heading
	  o paragraph
	  o sound with controls
			1	

3d	One mark each for: ♦ The website is not fit for purpose ♦ The toys do not have descriptions	Allow most of the website is fit for purpose as this indicates part of it is not.	2	Evaluation (2)
3e	One mark for: ♦ The (furniture) image changes when the mouse is moved over it		1	Testing (1)

Task	Expected response	Additional guidance	Marks available	
3	**Web design and development**			
3f	One mark each for: ♦ Home page with links to the other appropriate separate pages (feeding, furniture, toys & gifts, calming music) ♦ Clear external link shown from feeding		2	Design (2)

		Marks Available	Marks Awarded
Assignment total		40	

Task 1 – Software Design and Development		Marks Available	Marks Awarded	
1a – Design	Input inside loop	1		
	Conditional loop	1		
	Correct loop conditions	1		**/3**

1b - Implementation	Initial inputs (startMiles, charging stations)		1		
	Two fixed loops for number of charging stations		1		
	Input validation (rating)	Conditional loop with correct condition	1		
		Input of rating within loop	1		
		Error message displayed	1		
	IF statement	structure	1		
		conditions	1		
		pricePerMile assigned	1		
	Calculate and store milesTravelled in an array		1		
	Input of currentMiles inside loop and update startMiles		1		
	Calculate and store each journeyStage cost in an array		1		
	Running totals calculated within second loop		1		
	Display each journeyStage cost		1		
	Display total cost rounded to 2dp		1		
	Display total miles with message		1		**/15**

1c(i) - Testing	Evidence of test run and output	1		**/1**

1c(ii) – Testing	Journey stage costs	1		
	Total miles and total cost	1		**/2**

1c(iii) – Evaluation	Fitness for purpose	1		**/1**

1d – Evaluation	Efficiency	1		
	Robustness	1		
	Readability	1		**/3**

Task 2 – Database Design and Development		Marks Available	Marks Awarded	
2a – Analysis	Staff details	1		
	Problem details	1		**/2**
2b – Design	Both Primary keys	1		
	Foreign key	1		
	Range check	1		**/3**
2c - Implementation	Restricted choice validation	**1**		**/1**
2d(i) – Implementation	UPDATE and SET statement	1		
	WHERE clause	1		**/2**
2d(ii) – Implementation	SELECT , FROM	1		
	Join	1		
	Condition 1 (dateRaised)	1		
	Condition 2 (completed)	1		
	ORDER BY rating (ASC)	1		**/5**
2e(i)- Evaluation	Fitness for purpose	**1**		**/1**
2e(ii)- Evaluation	problemID used as search criteria	**1**		**/1**

Task 3 – Web Design and Development		Marks Available	Marks Awarded	
3a – Analysis	Functional requirement 1	1		
	Functional requirement 2	1		**/2**
3b – Implementation HTML	Heading and paragraph	1		
	Image added	1		
	Bullet point list	1		
	External link	1		
3b – Implementation CSS	Three colours implemented	1		
	Images sized	1		
	Text formatting	1		**/7**
3c - Implementation	Calming music section added	**1**		**/1**
3d – Evaluation	Website not fit for purpose	1		
	Toy descriptions missing	1		**/2**
3e - Implementation	JavaScript	**1**		**/1**
3f – design	Home page and separate pages linked	1		
	External link from feeding	1		**/2**

[END OF MARKING INSTRUCTIONS]