higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

BASIC PRINCIPLES OF COMPUTER PROGRAMMING AND COMPUTER LITERACY

NQF LEVEL 2

(Second paper)

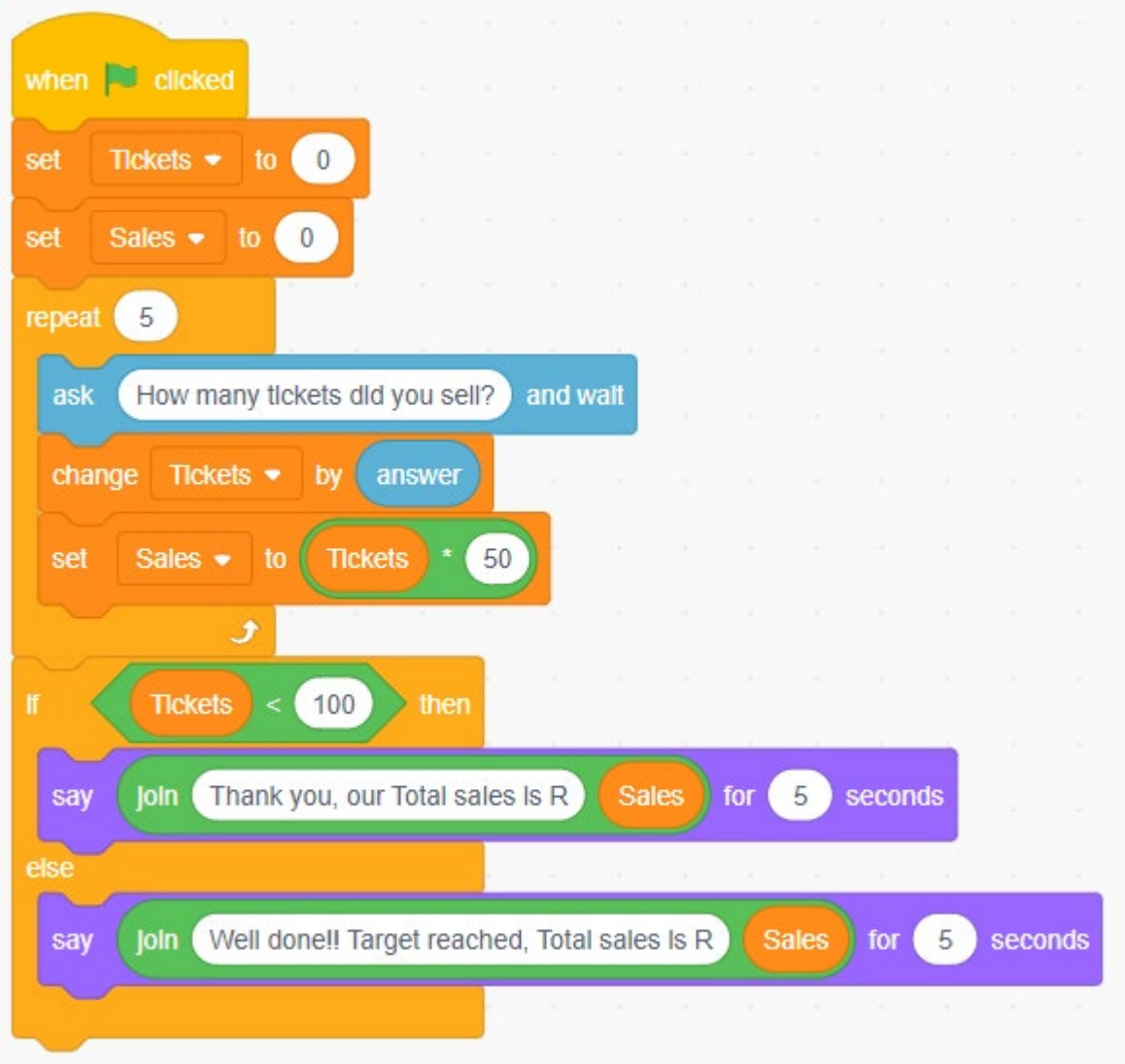
4 December 2024

This marking guideline consists of 5 pages.

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QUESTION 1

Sample solution



Mark allocation

1.1 1 Mark for setting the Stage backdrop to **Concert**. (1 × 1) (1)

1.2 1 Marks for changing the Sprite to **Singer 1**. (1 × 1) (1)

1.3 2 Marks for declaring variables **Tickets**, **Sales** and 2 Marks for initialising variables to 0. (4 × 1) (4)

1.4 2 Marks for using a loop that runs 5 times. (1 × 2)
2 Marks for prompting the user for the number of tickets. (1 × 2)
3 Marks for adding answers to Tickets and updating Tickets. (3 × 1)
3 Marks for calculating Sales and updating Sales variables. (3 × 1) (10)
(Allocate 1 mark for setting subtotal, 1 mark for addition and 1 mark for correct operands.)

1.5 2 Marks for using if-else block. (2 × 1)
2 Marks for correct condition. (2 × 1)

3 Marks for the correct message in the IF block. (3 × 1)
(Allocate 1 mark for the message, 1 mark for the total and 1 mark for the duration.)
3 Marks for the correct message in the ELSE block. (3 × 1)
(Allocate 1 mark for the message, 1 mark for the total and 1 mark for the duration.) (10)

1.6 1 Mark for a printout of Scratch code. (1)

1.7 1 Mark for a printout of the stage with output. (1 × 1)
1 Mark for displaying variables. (1 × 1)
1 Mark for correct output. (1 × 1)



(3)
[30]

QUESTION 2

The student can draw the shape using nested or single loops. A guideline for the solution of both methods is provided below.

2.1	# Examination Number	✓	(1)
2.2	import turtle shape = turtle.Turtle() #Student can use any name for their turtle	✓✓	(2)
2.3	turtle.bgcolor("Blue")	✓✓	(2)
2.4	shape.pencolor("Red")	✓✓	(2)

2.5	#Using nested loops
	for outerloop in range(8):
	  for innerloop in range(3):
	  shape.forward(150)
	  shape.left(120)
	  shape.right(45)
		
		✓✓✓
		✓✓
		✓✓
		✓✓
		✓✓
			(11)

2.5 Alternative Method to draw a triangle without a loop.	for outerloop in range(8):
	  shape.forward(150)
	  shape.left(120)
	  shape.forward(150)
	  shape.left(120)
	  shape.forward(150)
	  shape.left(120)
	  shape.right(45)
		✓✓✓
		✓
		✓
		✓
		✓
		✓
		✓
		✓✓
			(11)

2.6	Printout of Python code.	✓	(1)
2.7	Printout of Shape.	✓	(1)

[20]

QUESTION 3

Refer to the sample solution below on how to allocate the marks. The students attempt can differ from the sample solution provided. Marks are to be allocated as per the instructions on the question paper.

3.1		model = ["Fortuner", "Corolla", "Hilux", "Starlet","HiAce"] price = [800000.00,400000.00, 600000.00, 30000.00, 700000.00] qty = [763,1543,2367,1047,417]	✓✓ ✓✓ ✓✓	(6)
3.2		def Display_Menu():	✓✓	(2)
	3.2.1	totalSales = 0.0 profit = 0.0 profitPerc = 0.0	✓ ✓	(2)
	3.2.2	print("May 2024 Sales Analysis of Toyota vehicles \n")	✓	(1)
	3.2.3	print("%8s%16s%14s%16s%16s" %("Vehicle Model","Vehicle Price","QTY Sold","Total Sales","Monthly Profit"))	✓✓	(2)
	3.2.4	for x in range(len(model)):	✓✓✓ ✓	(4)

	3.2.5	if price[x] > 700000:
		profitPerc = 0.4
		elif price[x] > 500000:
		profitPerc = 0.3
		else: profitPerc = 0.2
			✓
			✓
			✓
			✓
			✓
				(5)

	3.2.6	totalSales = qty[x] * price[x] profit = totalSales * profitPerc	✓✓ ✓✓	(4)
	3.2.7	print("%8s%18s%17s%18s%18s"%(model[x],"R{:.2f}".format (price[x]),qty[x],"R{:.2f}".format(totalSales),"R{:.2f}". format(profit))) Refer to the code guide above and Allocate the marks as follows: • Each row should have FIVE columns. • The first THREE columns will represent values from the THREE lists. • The FOURTH and FIFTH columns must be calculated. • The FOURTH represents the value for Total Sales. • The FIFTH column represents the value for Monthly Profit. • Format the columns to have the appropriate spacing. • Format the prices to display as currency.	✓✓✓ ✓ ✓ ✓ ✓	(7)

3.3	def AnalyseSales():	✓✓	(2)
	3.3.1 TotalQty = 0.0 avgSales = 0.0 length = 0 lowest = 0 highest = 0	✓ ✓	(2)
	3.3.2 TotalQty = sum(qty) length = len(qty) avgSales = TotalQty/ length lowest = min(qty) highest = max(qty)	✓ ✓ ✓ ✓ ✓	(5)
	3.3.3 print("\nTotal number of Toyota vehicles sold for the month: ", TotalQty) print("Average number of Toyota vehicles sold across the models: {:.0f}".format(avgSales)) print("Lowest number Toyota vehicles sold for any model: ", lowest) print("Highest number Toyota vehicles sold for any model: ", highest)	✓ ✓ ✓	(4)

3.4	#Main Module
	Display_Menu()
	AnalyseSales()
		✓
		✓
			(2)

3.5	May 2024 Sales Analysis of Toyota vehicles Vehicle Model Vehicle Price QTY Sold Total Sales Monthly Profit Fortuner R800000.00 763 R610400000.00 R244160000.00 Corolla R400000.00 1543 R617200000.00 R123440000.00 Hilux R600000.00 2367 R1420200000.00 R426060000.00 Starlet R30000.00 1047 R31410000.00 R6282000.00 HiAce R700000.00 417 R291900000.00 R87570000.00 Total number of Toyota vehicles sold for the month: 6137 Average number of Toyota vehicles sold across the models: 1227 Lowest number Toyota vehicles sold for any model: 417 Highest number Toyota vehicles sold for any model: 2367	✓	(1)
3.6	Allocate a mark for the Printout of the source code.	✓	(1)
			[50]

TOTAL: 100

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