



## HIGHER EDUCATION PROGRAMME

Academic Year 2023:	July - December
Summative Assessment 1:	Praxis 1 (HPX100-1)
NQF Level, Credits:	5, 20
Weighting:	50%
Assessment Type:	Integrated Project
Educator:	C. Zhou
Examiners:	C. Zhou
Due Date:	20 November 2023
Total Marks:	100 marks

### Instructions:

- Summative Assessment 1 has to be uploaded onto ColCampus.
- This project consists of three (3) integrated questions.
- In order to answer the questions, you are required to draw on your knowledge and understanding from all the modules that make up the first year of the Diploma in Network Systems 1 and Diploma in Systems Development 1 programme.
- It is recommended that you read through and familiarise yourself with the entire document before you start answering individual questions.
- To ensure that you obtain maximum marks, please read each question carefully and take note of the mark allocation and study the rubrics provided.

## **Integrated Project**

The completion of an Integrated Project is a commonplace practice in qualifications at NQF levels 5, 6, and 7. The aim of the project is to ensure that the purpose of the qualification being studied is fully achieved in relation to the occupational focus of the qualification.

The Integrated Project is issued per programme qualification and requires students to integrate and apply their knowledge and understanding to a set of questions, drawing from the full complement of modules they have covered in that year of study.

**Question 1****[40 marks]**

- 1.1 The Fourth Industrial Revolution (4IR) has presented many opportunities in South Africa. However, the full potential of the 4IR is yet to be realised due to various reasons, including what has been termed the 'digital divide'. Read the following newspaper article by Naledi Ngqambela, which talks about the need for South Africa to bridge the digital divide: <https://mg.co.za/opinion/2022-11-10-south-africa-must-bridge-digital-divide-to-best-benefit-from-4ir/>. Examine in detail four (4) ways South Africa addresses the digital divide issue. In your answer, evaluate the effectiveness of each of the four ways by giving reasons. [20 marks]

**Rubric**

Criteria	Excellent	Good	Poor
Identify and examine four (4) ways to address the digital divide in South Africa.	The student identified and comprehensively examined four ways South Africa is implementing to deal with the digital divide issue.	The student identified at least three or four ways and provided with adequate explanation.	Students failed to identify reasonable ways South Africa is dealing with the digital divide issue.
Evaluate the effectiveness of each of the ways identified.	The student satisfactorily evaluates the effectiveness of the four ways identified above.	The student fairly evaluated the effectiveness of the four ways identified above.	The student failed to provide a meaningful evaluation of the effectiveness of each of the ways identified.
	<b>15 – 20 marks</b>	<b>10 – 14 marks</b>	<b>0 – 9 marks</b>

- 1.2 The Fourth Industrial Revolution (4IR) is a rapid technological advancement that demands new skills and working methods. As such, team members must develop their skills to be effective team players in this new era. Explain five (5) skills necessary to become an effective team player in the 4IR era. [20 marks]

**Question 2****[30 marks]**

Multidimension is a retail chain that deals in groceries and other household commodities. Over the past three years, they have expanded to different parts of the country. Their expansion drive has opened eight more new megastores in different towns. Recently the retail chain has diversified and is now selling hardware and furniture. Since they deal with individuals and corporate and retail customers, the procurement manager has indicated that some of their outlets run out of stock. According to him, this is caused by the "inability of the store managers to anticipate demand, both in terms of quantities and the type of products that are on demand". One of the store managers at a branch in Cape Town has indicated that the lack of a proper system to manage inventory is affecting the retail chain. Other store managers also share these sentiments. "Most operations are repetitive because we do not yet have a system that integrates all the store operations. This also causes problems because it is challenging and time-consuming to trace sales and even to balance off a day's transactions", said Siya, the store manager of the Durban branch. "We wish we had a system that will enable us to monitor inventory levels and restock in time and also according to demand, a system that perhaps can be linked to our suppliers", he added. Many store managers have bemoaned to centralizing decision-making as counterproductive, as decisions made regarding inventory and finances are not branch specific.

Furthermore, decision-making regarding store operations takes time as the Head Office needs to consolidate reports from all the stores countrywide. In addition, store managers have suggested a loyalty programme enabling the retail chain to honour its loyal customers through discounts and loyalty rewards packages. There is no way of determining whether a customer is loyal since no customer details or transaction history can be traced.

**Required**

You are head of an Information Technology (IT) consultancy company engaged in looking at ways the retail chain can harness technology to improve their operations and customers' experience. Use the case study above to identify and discuss five (5) types of information systems you recommend for Multidimension. Provide a detailed

description of how each information system would work and the operational areas that it would affect. [30 marks]

**NB:** Marks will be awarded for identifying appropriate information systems, explaining them, and justifying their implementation by Multidimension.

### Question 3

[30 marks]

A shop specialising in household paint products has approached you (an application developer) for your services. They want you to develop an application they will use in their shop to estimate the amount of paint that customers would need to purchase when they supply the dimensions of their houses. To develop this application, you will work on the following assumptions:

- A house is a three-dimensional structure (the dimensions are length, width and height)
- A tin of paint covers about 10 square meters of wall space.

### Required

Create an application using Java that prompts the user for a rectangular room's length, width, and height. Pass these THREE parameters to a method that does the following:

- Calculate the room's wall area and display it inside a label when a button is clicked.
- Passes the calculated wall area to another method that calculates and returns the number of tins of paint needed.
- Displays the number of tins needed in a label. This must happen at the click of a button.
- Compute the paint price given that a tin of paint costs R30 assuming that any fraction of paint is bought at the full price of a tin. The total cost of the paint should be displayed on a label when a button is clicked.
- The system (application) should calculate and display the amount of Value Added Tax charged, and the Total Cost of the paint after Value Added Tax should be displayed.
- Lastly, the application should capture the amount tendered to the cashier and calculate and display the change.

**Please Note:** Marks will not be awarded for auto-generated source code.

### Rubric

Objective	Criteria	Marks
Use the information supplied to create a working application. Generate test data, and submit evidence of a functional application. Submit screenshots and a zip folder containing the entire application. The application is called PaintApp.	Create a graphical user interface reflecting all the required components, including labels, textboxes, and buttons, using Java.	8
	Create a method that captures the dimensions, calculates the wall area, and displays the area in the correct field.	6
	Create a method that uses the wall area as an argument, calculates the number of tins of paint needed, and displays it in the correct field.	6
	Create a method that calculates the total cost and value-added tax given the number of tins needed and displays the figures in the correct fields according to the specifications.	6
	Create a method that accepts an amount and calculates and displays the change in the correct field	4