061306T4CSC

COMPUTER SCIENCE LEVEL 6

ICT/OS/CS/CR/06/6/A

ICT/OS/CS/CR/06/6/B

Understand Algorithms and Data Structures

July/August 2025

TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)

PRACTICAL ASSESSMENT

DURATION: TO RUN THROUGHOUT THE TRAINING

INSTRUCTIONS TO CANDIDATE:

1. You are required to perform the following tasks

i. Install C++ in the computer

ii. Create a list and perform operations

iii. Create a payroll subsystem

2. You have been provided with the following resources:

i. A working computer

ii. Internet Access

Task 1: Install C++ program and create a list

a. **Install C++ program**

i. Download the appropriate C++ IDE compiler

ii. Install the C++ IDE

iii. Launch the IDE

b. **Create a list and perform operations**

As a student, you have been involved in queuing to get services in various offices of your institution. As a computer scientist, you noted that, people can join the queue from the front, back, middle or any point they desire. People can also decide to leave the queue permanently or change their positions. Being a computer scientist, you have decided to implement by creating a list that contain some days of the week Tuesday, Wednesday, Friday and Sunday.

You are required to perform the following tasks:

i. Write a program that contains a list called days to hold the elements Tuesday, Wednesday, Friday and Sunday.

ii. Add the element Monday before Tuesday

iii. Display the new list

iv. Delete the element Saturday from the list

v. Display the new list

vi. Display the first element in the list

vii. Display the last element in the list

viii. Display all the values of the list in the reverse order

Task 2: Create Payroll sub-system

Being a Computer science graduate you have been employed in a XYZ Company as Software Developer. The Tasks entails capturing the employee details (number, name, gender, salary and department) and storing them in corresponding arrays. All employees pays a tax of 5% of their salary, The program should calculate the netpay and output (number, name, gender, department, salary tax, and netpay).

You are required to carry out the following tasks:

i. Declare arrays to store number, name, gender, department, salary tax, netpay.

ii. Declare appropriate variables that will be used in the program

iii. Input the number of employees from the keyboard.

iv. Use while loop to input employees details (number, name, gender, department and salary) for the number of employees entered in (ii) from the keyboard.

v. Calculate the tax paid by each employee

tax=5% of salary

vi. Calculate the netpay for each employee

Netpay=salary-tax

vii. Use netpay to sort the records from the highest to the lowest

viii. Calculate the total amount of salary paid to employees

ix. Calculate the total amount of taxes paid deducted from employees

x. Display the number, name, gender, department, salary tax, and netpay sorted in ascending order according netpay as shown in the format below.

PAYROLL FOR THE MONTH OF DECEMBER 2024

Number	Name	Gender	Department	salary	Tax	Netpay
4000	Nema	F	Mechanical	14000	700	13300
3000	Willy	M	ICT	13000	650	12350
1000	James	M	ICT	12000	600	11400
2000	Omondi	F	Mechanical	10000	500	9500
TOTAL				49000	2450	46550

Task 3: Create a sub-system to compute the cost of hardware item

A computer science student came across a purchase receipt containing the details of hardware items purchased by his father for family use. Since he had learned about arrays as a data management tool he decided to test his skills on array management. The receipt contained the headers code, item name, price, quantity and the cost.

The details of the receipt were displayed in the format shown below.

Nuru Hardware Ltd.

Code	Particulars	Price	Quantity	Cost
110	Panga	350	12	4200
120	Jembe	250	10	2500
130	Slasher	200	11	2200
140	hammer	450	12	5400
150	Pliers	210	34	7140
Total				21440
Items:5				

You are required to carry out the following tasks:

i. Declare the arrays code, particulars, price, quantity and cost.
ii. Declare the appropriate variables that will be use in the program
iii. Assign values to each array (code, particulars, price, quantity) as shown in the receipt.
iv. Calculate the cost of each item by multiplying the price and quantity.
v. Calculate the total amount paid for the goods purchased
vi. Calculate the number items in the receipt
vii. Display the number of items
viii. Display the output as shown in the receipt