Self Assessment

Before undertaking any assessment, you should review the list of skills, knowledge and aptitudes relating to the assessment (drawn from the units of competency, its various elements and performance criteria) to determine whether you have current competency in these areas.

If you believe you can demonstrate the skills and knowledge required and can successfully complete the various assessment activities, you should then proceed to discuss your assessment with the assessor and complete the Assessment Agreement.

However, should you not believe, for whatever reason, that you are not able to successfully complete the various assessment activities, then speak with the assessor. The assessor will assist you in identifying any skill and knowledge gaps, work through those with you and assist you as much as possible in attaining competency.

Please complete the self-assessment checklist below and discuss with the assessor.

Qualification:	National Skill Certificate in Android Mobile Application Development, NSQF Level- 4		
Unit of competency	Android Mobile Application Development		
Candidate's name			

Instruction:
•   Read each of the questions in the left-hand column of the chart.
•   Place a check in the appropriate box opposite each question to indicate your answer.

Can I?	**YES**	**NO**
Work with Kotlin Basics		
Work with OOP and Design Pattern		

I agree to undertake the assessment in the knowledge that the information gathered will only be used for professional development purposes and can only be accessed by concerned assessment personnel and my manager/supervisor.

Candidate Signature		Date:
Assessors' Signature		Date:

Attendance & Result Sheet

Daffodil International Professional Training Institute

Occupation & Level: Android Mobile Application Development, L4

Candidate Type: ☐ Regular ☐ Reassessment

Assessment Date: 15-08-2024

Assessment Type: ☐ STP ☐ RPL

SL	Candidate Name	Father's Name	Mother's Name	Signature	Registration No.	Mobile Number	Assessment Result		
							Competent (C)	Not Yet Competent (NYC)	Reassessment Requirements (If NYC)
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উপস্থিতি ও ফলাফল শীট

ড্যাফোডিল ইন্টারন্যাশনাল প্রোফেশনাল ট্রেনিং ইন্সটিটিউট

অকুপেশন ও লেভেল: অ্যাড্রয়েড মোবাইল অ্যাপ ডেভেলপমেন্ট, লেভেল- ৪

ক্যান্ডিডেটের ধরণ: ☐ রেগুলার ☐ রিঅ্যাসেসমেন্ট

অ্যাসেসমেন্টের তারিখ: ১৫ আগস্ট ২০২৪

অ্যাসেসমেন্টের ধরণ: ☐ এসটিপি ☐ আরপিএল

ক্র. নং	নাম	পিতার নাম	মাতার নাম	স্বাক্ষর	রেজিষ্ট্রেশন নম্বর	মোবাইল নম্বর	অ্যাসেসমেন্টের ফলাফল		
							কম্পিটেন্ট (C)	নট ইয়েট কম্পিটেন্ট (NYC)	রি-অ্যাসেসমেন্ট রিকোয়ারমেন্ট (if NYC)
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Competency Assessment
Agreement Form

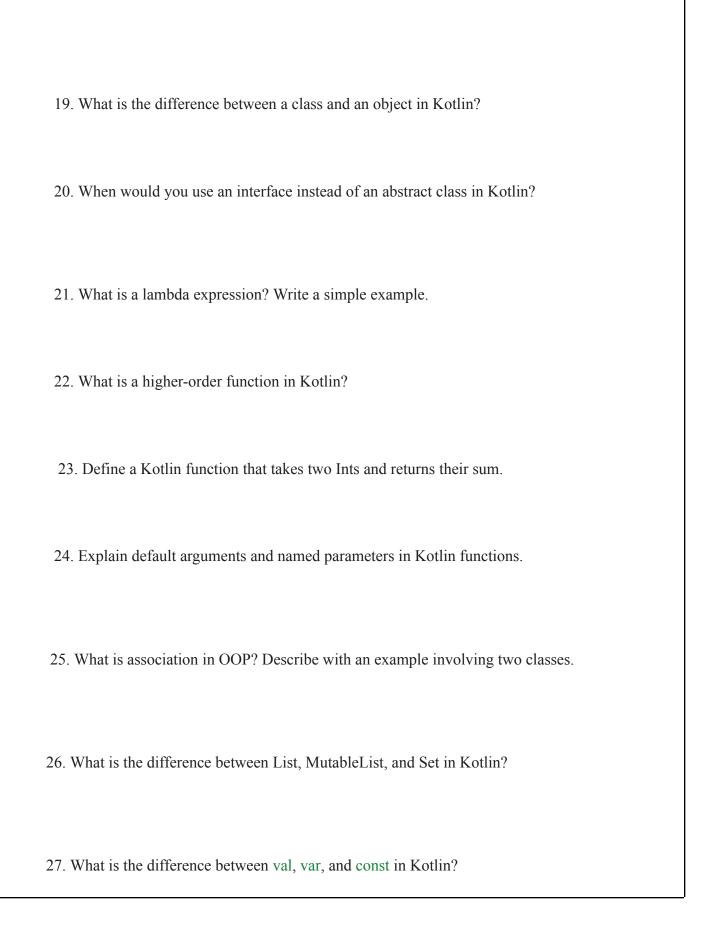|			
Candidate's Name:			
Assessor's Name:			
Qualification	National Skill Certificate in Android Mobile Application Development, NSQF Level- 4		
Qualification/Units of Competency to be Assessed	OU-ICT-AMAD-01-L3-V1: Work with Kotlin Basics OU-ICT-AMAD-02-L4-V1: Work with OOP and Design Pattern		
Candidate to answer the question:		Yes	No
Have the context and purpose of assessment been explained?			
Have the qualification and units of competency been explained?			
Have the Project-Based Assessment been explained?			
Do you understand the assessment procedure and evidence to be collected?			
Have your rights and appeal system been explained?			
Have you discussed any special needs to be considered during assessment?			
I agree to undertake assessment in the knowledge that information gathered will only be used for professional development purposes and can only be accessed by concerned personnel and my manager/supervisor.			
Candidate's Signature:		Date:	
Assessor Signature:		Date:	

Written Question

Time: 60 minute

Qualification	National Skill Certificate in Android Mobile Application Development, NSQF Level- 4
Candidate's Name	
Assessor Name	
Date of Assessment:	
Assessment Centre	

1. Which of the following is not a pillar of Object-Oriented Programming?
a) Encapsulation
b) Inheritance
c) Compilation
d) Polymorphism

2. What keyword is used to create an abstract class in Kotlin?
a) abstract
b) virtual
c) base
d) open

3. What does encapsulation help achieve in OOP?
a) More memory usage
b) Hiding internal implementation
c) Increasing code duplication
d) Extending multiple classes

4. How do you define inheritance in Kotlin?
a) class B inherits A
b) class B extends A
c) class B : A()
d) class B >> A

5. Which keyword is used to declare a function in Kotlin?
a) def
b) fun
c) function
d) fn

6. What is a lambda expression in Kotlin?
 a) A function inside a class
 b) A named function
 c) An anonymous function
 d) A recursive function

7. What is the correct syntax for a higher-order function?
 a) fun calc(x: Int): Int
 b) fun calc(x: Int, y: Int)
 c) fun calc(x: Int, op: (Int) -> Int): Int
 d) fun calc = (Int) -> Int

8. How do you declare a read-only variable in Kotlin?
 a) var x = 5
 b) final x = 5
 c) let x = 5
 d) val x = 5

9. What is the default data type for floating-point numbers in Kotlin?
 a) Float
 b) Int
 c) Double
 d) Decimal

10. What is the correct way to define a primary constructor in Kotlin?
 a) class MyClass constructor(name: String)
 b) class MyClass: constructor(name: String)
 c) class MyClass { name: String }
 d) class MyClass with constructor(name: String)

11. Identify and correct the error :

val age = 18

if age >= 18

   println("Adult")

else

   println("Minor")

12. Identify and correct the error:

```
for i in 1..5 {

    println(i)

}
```

13. Identify and correct the error:

```
open class Animal

class Dog extends Animal
```

14. Identify and correct the error:

```
fun sum(a: Int, b: Int):

    return a + b
```

15. What is Abstraction in OOP? Explain with an example.

16. What is Encapsulation and how is it implemented in Kotlin?

17. Define Inheritance with a real-world Kotlin example.

18. What is Polymorphism? Differentiate between compile-time and run-time polymorphism.

19. What is the difference between a class and an object in Kotlin?

20. When would you use an interface instead of an abstract class in Kotlin?

21. What is a lambda expression? Write a simple example.

22. What is a higher-order function in Kotlin?

23. Define a Kotlin function that takes two Ints and returns their sum.

24. Explain default arguments and named parameters in Kotlin functions.

25. What is association in OOP? Describe with an example involving two classes.

26. What is the difference between List, MutableList, and Set in Kotlin?

27. What is the difference between val, var, and const in Kotlin?

28. Write a for-loop to print even numbers between 1 and 10.

29. What is the difference between while and do-while loop?

30. Write a Kotlin program using if-else to check if a number is positive, negative, or zero.

Feedback to candidate:		
Candidate's Signature		Date:
Assessor Signature		Date:

Job Sheet-1
Android Mobile Application Development
AMAD-4

Name of the job: Implement a Secure Bank Account System using Encapsulation and Abstraction in Kotlin

Time: 30 Min

Procedure/Steps:

- Follow OSH
- Wear PPE
- Check the Connection and computer
- Start the Computer.
- We are using the Kotlin language
- Tools we are using: IntelIJ
- Java Development Kit.
- Save the project
- Shut down the computer and clean your workplace.

Specification Sheet-1
Android Mobile Application Development
AMAD-4

Name of the job: Implement a Secure Bank Account System using Encapsulation and Abstraction in Kotlin

Time: 30 Min

1. Define a BankAccount class with the following private properties:

   o accountNumber: String

   o balance: Double

2. Use **encapsulation** to control access to sensitive properties like balance.

3. Provide the following public methods (with abstraction of internal logic):

o getBalance(): Returns the current balance.

   o deposit(amount: Double): Increases the balance if the amount is valid.

   o withdraw(amount: Double): Decreases the balance if sufficient funds are available.

4. In the main() function:

   o Create a BankAccount object.

   o Perform a deposit.

   o Attempt a withdrawal that exceeds the balance.

   o Perform a valid withdrawal.

   o Print the balance after each operation.

Job Sheet-2
Android Mobile Application Development
AMAD-4

Name of the job: Appliance Power Usage Calculator

Time: 30 Min

Procedure/Steps:

- Follow OSH
- Wear PPE
- Check the Connection and computer
- Start the Computer.
- We are using the Kotlin language
- Tools we are using: IntelIJ
- Java Development Kit.
- Save the project
- Shut down the computer and clean your workplace.

Specification Sheet-2
Android Mobile Application Development
AMAD-4

Name of the job: Appliance Power Usage Calculator

Time: 30 Min

1. Create an abstract class Appliance with an open method calculatePowerUsage().

2. Create three subclasses:

   o Fan: Assume it runs for 16 hours at 75 watts.
   o AirConditioner: Assume it runs for 11 hours at 1500 watts.

   o LightBulb: Assume it runs for 13 hours at 10 watts.

3. Each subclass should override calculatePowerUsage() and print how many kilowatt-hours (kWh) it consumed using:

   kWh=wattage×hours/1000.0

4. In the main() function:

o Create objects of each subclass. o

Call the calculatePowerUsage() method for each object.

Job Sheet-3
Android Mobile Application Development
AMAD-4

Name of the job: Student Bank App
Time: 60 Min
Procedure/Steps:

- Follow OSH
- Wear PPE
- Check the Connection and computer
- Start the Computer.
- We are using the Kotlin language
- Tools we are using: IntelIJ
- Java Development Kit.
- Save the project
- Shut down the computer and clean your workplace.

Specification Sheet-3
Android Mobile Application Development
AMAD-4

Name of the job: Student Bank App: Manage Student Savings Account using Kotlin Classes
Time: 60 Min

Requirements:

• Build a class StudentAccount with the following private fields:

o studentId: String
o accountBalance: Double

o studentName: String

o passwordPin: Int

• Methods to:

o viewBalance()

o saveMoney(amount: Double)

o spendMoney(amount: Double)

• In the main() function:

o Simulate a student saving and spending money, and print the balance updates.

Observation/ Demonstration Checklist

Qualification	National Skill Certificate in Android Mobile Application Development, NSQF Level- 4
Candidate's Name	
Assessor's Name	
Date of Assessment:	
Assessment Centre	

During the demonstration of skills, did the candidate:	Yes	No
Kotlin basics		
Function		
loop and conditional statements		
Class Objects		
OOP		
Run Program		

The candidate's demonstration was:	Satisfactory	Not Satisfactory	
Feedback to Candidate :	Satisfactory	Not Satisfactory	
The candidate's overall demonstration was	: Satisfactory	Not Satisfactory	
Assessor Signature:		Date:	
Candidate Signature:		Date:	

Oral Questioning Checklist

Qualification	National Skill Certificate in Android Mobile Application Development, NSQF Level- 4
Candidate Name	
Assessor Name	

Instructions for the assessor:
- Check for the satisfactory answer of the candidate during the conduct of oral questioning
- Place a tick in the yes box if the candidate answered the oral questions correctly and no box if the candidate does not answer the oral questioning correctly

Date of assessment	
Location of the assessment activity	

Questions	Satisfactory response	
	Yes	No
1. Explain the difference between val and var in Kotlin.		
2. Explain the purpose of the open keyword in Kotlin.?		
3. What is a Primary constructor in OOP?		
4. What are the 4 pillars in OOP?		
5. How to define a class in Kotlin?		
6. Difference between class and objects?		

The candidate's Underpinning knowledge was:	Satisfactory	Not yet Satisfactory
Feedback to candidate:	Satisfactory	Not yet Satisfactory
The candidate's overall performance was:	Satisfactory	Not yet Satisfactory

Candidate's Signature		Date:
Assessor Signature		Date:

Competency Assessment Results Summary

Name of Candidate:		Registration No.	
Name of Assessors:			
Title of Qualification:	Android Mobile Application Development		
Assessment Centre:		Date of Assessment:	

The performance of the candidate in the following unit(s) of competency and corresponding assessment methods

Units of Competency		Assessment Events					
		Written Test		Demonstration		Oral Questioning	
		S	NS	S	NS	S	NS
OU-ICT-AMAD-01-L3-V1	Work with Kotlin Basics						
OU-ICT-AMAD-02-L4-V1	Work with OOP and Design Pattern						

Note 1: For written tests, Satisfactory(S) results shall only be given to a candidate who successfully answers all the critical questions identified in the above-named Qualification/Cluster of Units of Competency.
Note 2: Satisfactory(S) Performance shall only be given to candidates who demonstrated successfully all the competencies identified in the above-named Qualification/Cluster of Units of Competency.
Note 3: For oral questioning Satisfactory(S) result shall only be given to a candidate who successfully answers all the critical questions identified in the above-named Qualification/Cluster of Units of Competency
Note 4: NA means not applicable
Note 5: NS means not satisfactory

Recommendation:	For issuance of NC/SoA (Indicate title/s of SoA, if Full Qualification is not met)	For submission of Additional documents Specify:	For re-assessment (pls. specify)
Did the candidate's overall performance meet the required evidence/ standards?		Yes	No
OVERALL EVALUATION	Competent		Not Yet Competent
General Comments [Strengths/Improvements needed]			
Signature of Candidate		Date:	
Signature of Assessor		Date:	

CANDIDATE'S COPY

(Please present this form when you clam your NC/SOA)

Competency Assessment Results Summary

Name of Candidate:		Registration No.	
Name of Assessors:			
Title of Qualification:	Android Mobile Application Development		
Assessment Centre:		Date of Assessment:	

The performance of the candidate in the following unit(s) of competency and corresponding assessment methods

Units of Competency		Assessment Events					
		Written Test		Demonstration		Oral Questioning	
		S	NS	S	NS	S	NS
OU-ICT-AMAD-01-L3-V1	Work with Kotlin Basics						
OU-ICT-AMAD-02-L4-V1	Work with OOP and Design Pattern						

Note 1: For written tests, Satisfactory(S) results shall only be given to a candidate who successfully answers all the critical questions identified in the above-named Qualification/Cluster of Units of Competency.
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Note 5: NS means not satisfactory

Recommendation:	For issuance of NC/SoA (Indicate title/s of SoA, if Full Qualification is not met)	For submission of Additional documents Specify:	For re-assessment (pls. specify)
Did the candidate overall performance meet the required evidences/ standards?		Yes	No

OVERALL EVALUATION	Competent	Not Yet Competent

General Comments [Strengths/Improvements needed]			
Signature of Candidate		Date:	
Signature of Assessor		Date:	