	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Computer Science Department	

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Programming Language			**Module Delivery**	
Module Type	Core			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	COMP1201				
ECTS Credits	10				
SWL (hr/sem)	250				
Module Level	1		**Semester of Delivery**	2	
Administering Department	Computer science		**College**	Science	
Module Leader	Dr. Hasnaa Imad Abdulsalam		**e-mail**	hasnaimad@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Dr. Jamal Mohammed Kadhim		**e-mail**	jamal.mohammedkadhim@nahrainuniv.edu.iq	
Module Lab Instructor(s)	Dr. Hasnaa Imad Abdulsalam Dr. Tiba Zaki Abdulhameed Dr. Israa Hussain Hanaa Mohammed Mushgil Najwan Abd Fatin Ali Abid Hajir Yas Reem Hussain Ali		**email(s)**	hasnaimad@nahrainuniv.edu.iq tiba.zaki@nahrainuniv.edu.iq esraa.hussien@nahrainuniv.edu.iq najwan.abedhassan@nahrainuniv.edu.iq hanaa.mohammed@ced.nahrainuniv.edu.iq fatin.Ali@nahrainuniv.edu.iq reem.msco23@ced.nahrainuniv.edu.iq	
Peer Reviewer Name	Dr. Tiba Zaki Abdulhameed		**e-mail**	tiba.zaki@nahrainuniv.edu.iq	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Programming fundamentals	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1) Problem solving skills a) Learning how to link and organize simple ideas b) how to break down problems into logical pieces. 2) Being able to compare between various solution of the same problem 3) building simple applications.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The learning outcomes of a class on arrays, recursive methods, and CSV file reading can vary depending on the institution and the instructor, but some common outcomes include: ● **Translate Algorithms that manipulate structured data to java code** ● **Identify an array,**An array is a data structure that stores a collection of data elements of the same type. ● **Write code to create and manipulate arrays compose previous programming skills to solve more complex problems** This includes being able to create arrays of different sizes, add and remove elements from arrays, and sort arrays. ● **Understand the concept of a recursive method** A recursive method is a method that calls itself. ● **Write code to implement recursive methods** This includes being able to write recursive methods to solve problems such as finding the factorial of a number or the Fibonacci sequence. ● **Understand the concept of files, especially a CSV file**

	A CSV file is a file that stores data in a tabular format. ● **Write code to read and write CSV files**

Indicative Contents
المحتويات الإرشادية
	he indicative content for a class on arrays, recursive methods, and CSV file reading might include the following topics:
	
	● **Arrays** (1D, and 2D)
	  ○ What is an array?
	  ○ How to declare an array
	  ○ How to access elements of an array
	  ○ How to add and remove elements from an array
	  ○ How to sort an array
	  ○ How to search array
	● **Recursive methods**
	  ○ What is a recursive method?
	  ○ How to write a recursive method
	  ○ How to use a recursive method to solve problems
	● **CSV files**
	  ○ What is a CSV file?
	  ○ How to read data from a CSV file
	  ○ How to write data to a CSV file

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main way this module will be taught is by encouraging students to participate in exercises, while also improving and expanding their critical thinking skills. This will be accomplished through lectures, interactive tutorials, and simple experiments that are interesting to the students. Here is a more detailed explanation of each point: ● **Encouraging student participation in exercises:** This will help students learn by doing and apply the concepts they are learning in a practical setting.

	• **Improving and expanding critical thinking skills:** This will help students learn to think more deeply about the material and to come up with their own solutions to problems. • **Lectures:** Lectures will provide students with the foundation they need to understand the material. • **Interactive tutorials:** Interactive tutorials and discussions will allow students to practice the concepts they are learning in a safe environment. • **Simple experiments:** Simple experiments will allow students to see the concepts they are learning in action.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	153	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	10.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	97	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	250		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)		All
	Assignments	2	10% (10)		All
	Lab.	1	15% (15)	Continuous	All
	Projects	0	5% (5)		
Summative assessment	**Midterm Exam**	2 hr	10% (10)		All
	Final Exam	3hr	50% (50)		All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Ch6: Review loops (nested loops) ,
Week 2	Ch6: Characters , Which Loop to Use, String Iteration , The indexOf Method, Substrings, String Comparison , String Formatting HW 6.13 Exercises
Week 3	Ch7 Arrays and References Creating Arrays, Accessing Elements , Displaying Arrays
Week 4	Copying Arrays, Traversing Arrays
Week 5	Random Numbers , Building a Histogram.
Week 6	The Enhanced for Loop m, Counting Characters HW 7.11 Exercises
Week 7	Mid-term Exam
Week 8	2D arrays
Week 9	parallel arrays
Week 10	students and subjects table.(how to implement it)
Week 11	manipulation of 2D array
Week 12	Mid-term Exam
Week 13	8 Recursive Methods Recursive Void Methods, Recursive Stack Diagrams , Value-Returning Methods ,The Leap of Faith, Counting Up Recursively HW 8.10 Exercises
Week 14	Introducing files, CSV, (read and write)
Week 15	**review**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: nested loops
Week 2	Lab 2: string and char manipulation.
Week 3	Lab 3: methods to Create Arrays, Accessing Elements , Displaying Arrays,print one Dimension array, sum, average.
Week 4	Lab 4:methods to Copy Arrays, Traverse Arrays
Week 5	Lab 5: Random Numbers , Building a Histogram.
Week 6	Lab 6: using array to display international telephone number
Week 7	Lab 7: Mid-term Exam
Week 8	Lab 8: solve mid term questions
Week 9	Lab 9: Histogram of customers distribution of ice-cream company
Week 10	(two dimensional array applications) TickTackToy
Week 11	Matrix operations
Week 12	Mid-term Exam
Week 13	Lab 13: recursive method (factorial, fibonacci, delete char from string, delete two consecutive chars using loops and then using recursive method) Binary Number System . Recursive Binary Method, CodingBat Problems .
Week 14	Lab 14: read csv file
Week 15	Lab 15: review

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Think Java: How to Think Like a Computer Scientist, 2 nd Edition, Version 7.1.0 Allen B. Downey and Chris Mayfield	free online
Recommended Texts	Introduction to Java Programming, Comprehensive Version, 10th Edition, by Y. Daniel Liang Head First Programming Head First Java	
Websites	Book's Website: https://books.trinket.io/thinkjava2/index.html https://codingbat.com/java https://www.codejava.net/java-se/file-io/how-to-read-and-write-text-file-in-java	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.