

ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
(Department of Computer Science)

WARNING

1. PLAGIARISM OR HIRING OF OTHER WRITER(S) FOR SOLVING THE ASSIGNMENT WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.
2. SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN 'AIOU PLAGIARISM POLICY'.

Course: Internet Programming Language (3427/3582)
Level: MBA/IT-PGD(CS)

Semester: Spring, 2014
Total Marks: 100

ASSIGNMENT No. 1

Units (1 - 4)

Note: All questions carry equal marks.

- Q. 1
- a) Explain the history of Java language. Also describe the types of comments in Java applications?
 - b) Demonstrate different data types used in Java with examples.
- Q. 2
- a) Briefly explain different types of control structure in Java language?
 - b) Explain the four essentials of counter controlled repetition with help of program segments.
- Q. 3
- Write Java statements to accomplish each of the following:
- a) Display the value of the character array in sorted order.
 - b) Total the elements of floating-point array **C** of **100** elements.
 - c) Copy 5-element array **A** into the last portion of array **B**, containing 10 elements.
 - d) Determine and print the smallest and largest values contained in 50-element floating-point array **W**.
- Q. 4
- The factorial of a non negative integer **n** is written **n!** (Pronounced “n factorial”) and is defined as follows:
n! = n(n-1)(n-2)...1 (for values of n greater than or equal to 1) and **n! = 1** (for n = 0). For example, **5! = 5.4.3.2.1**, which is **120**.
- a) Write an application that reads a non negative integer from an input dialog and computes and prints its factorial.
 - b) Write an application that estimates the value of the mathematical constant *e* by using the formula

$$e = 1 + \frac{1}{1!} + \frac{1}{2!} + \frac{1}{3!} + \dots$$

- Q. 5 Distinguish between following items:
- a) References and reference parameter
 - b) Single subscripted array and multiple subscripted arrays
 - c) Third element of array and array element 3
 - d) Applet and application

ASSIGNMENT No. 2

Total Marks: 100

(5 - 8)

- Q. 1 Define inheriting interface and inheriting implementation. How do inheritance hierarchies designed for inheriting interface differ from those designed for inheriting implantation?
- Q. 2
- a) Describe packages in Java? Also explain the usage and importance of SJava API packages.
 - b) Explain the complexity of casting a super-class reference to a subclass reference.
- Q. 3
- a) What is the difference non-abstract methods and abstract methods.
 - b) Create a class **Square**. The class has attributes length and width, each of which defaults to 2. It has method that calculates the perimeter and the area of the square. It has set and get methods for both length and width. The set methods should verify that length and width are each floating-point numbers larger than 0.0 and less than 20.0.
- Q. 4
- a) Define the term polymorphism? Also explain dynamic method binding in polymorphism.
 - b) Program a code for an application that uses String method “**compareTo**” to compare two strings input by the user. Output whether the first string is less than, equal to or greater than the second.
- Q. 5 Write a note on each of the following:
- a) This Reference
 - b) Protected Members
 - c) Dynamic Method Binding
 - d) Exception Types

ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
(Department of Computer Science)

Course: Internet Programming Language (3427/3582)
Level: MBA/IT-PGD(CS)
Course Code: 3582 (Old 3427)

Semester: Spring, 2014
Total Marks: 100
Credit Hours: 4(3+1)

Recommended Books	JAVA, How to Program, By Deital & Deital 3 rd Edition
Audio/Video/Multimedia CD:	Multimedia CD Available
Reference Book:	Java 2: The Complete Reference, 5 th Edition by Herbert Schildt
Pre-Requisite	None
Teaching Methodology	Online
Computer Usage	2 hours supervised lab per week + at least 2 hours unsupervised lab

Introduction:

This course has been designed to implement OOP concepts using Java language. The course covers basics elements of programming including data types, control structures and classes. It then covers advance OOP concepts of simple & multiple Inheritance, polymorphism and abstraction. The course covers exception handling techniques and GUI programming basics using packages and Java APIs.

Course Objectives:

At the end of the course the students are expected to be able to:

1. Understand the implementation of Object Oriented Concepts U
2. Develop simple Java applications & applets using java constructs and swing APIs D
3. Use access specifier to create classes and methods U
4. Develop Java Programs using major OOP concepts D
5. Handle exceptions using Java APIs H
6. Develop small GUI applications like mini calculator, Notepad-Fond/Color options D

Evaluation Criteria:

i)	Assignments	10%
ii)	Mid Term Theory/Practical Examination	20%
iii)	Final Examination	70%

Moiz Ahmed, Assistant Professor, DCS
Course Coordinator

Internet Programming Language

Course Code – 3582 (Old 3427)

- Unit No.1: Introduction to Java Applications**
Introduction, Using Comments, Block of Codes, a Simple Java Program
- Unit No.2: Data Types & Arrays**
Data Types, Declaring & allocating Arrays, References and Reference Parameters, Searching Arrays, Multiple Subscribed Arrays
- Unit No.3: Control Structure-I**
Selection Structure, While Repetition Structure
- Unit No.4: Control Structure-II**
For Repetition Structure, Do/While Repetition Structure, Break and Continue, Multiple Selection Structure
- Unit No.5: Object Oriented Programming-I**
Introduction to Class, Class Scopes, Creating Packages, Constructors, Set & Get Method, This Reference, Finalizer, Static Class Member
- Unit No.6: Object Oriented Programming-II**
Super Class, Sub Classes, Protected Members, Inheritance, Polymorphism, Dynamic Method Binding, Inner Class Definitions
- Unit No.7: Packages, Interfaces, and Exception Handling**
Defining a Package, Access Protection, Importing Packages, Interfaces, Exception-Handling Fundamentals, Exception Types, Using Try & Catch, Java Built-In-Exceptions
- Unit No. 8: Strings & Characters**
String Constructors, String Comparing, String Methods, String Concatenating, String Classes, String Methods
- Unit No.9: GUI**
Graphics Context, Graphic Methods, Color and Font Control, Drawing Shapes, Java 2d API, Java 2d Shapes, Swing Overview, Jlabel, Event Handling Model, Jbutton, Jtextfield Jradiobutton, Jcheckbox, jlist, Multiple Selection List, Mouse Event Handling, Keyboard Event Handling, Layout Mangers

Activities

1. Develop a Java application to demonstrate the use of blocks & visibility
2. Develop a program to add two matrix using multiple array

3. Demonstrate the difference between for and while repetition structures by examples
4. Develop a student class with set & get methods. Demonstrate the use of access specifiers
5. Demonstrate the use of inheritance using a bank account class which has sub accounts types as current account & saving account. Develop & apply profit and tax deduction methods. Also illustrate the use of exceptions.
6. Develop a calculator application to demonstrate the use of Swing API
7. Develop a text editor with open, save, print, exit facilities using APIs

Note: These are sample activities. Instructor may assign additional activities during the course.