**DCA7102 – PROGRAMMING IN JAVA**

**PROGRAM MCA (SEMESTER III)**

**Assignment Set – 1**

**1. a. Discuss the architecture of Java with the help of suitable diagram. Explain their entire technicality in detail.**

**Ans:**

**Architecture of JavaFX API**

In JavaFX, the GUI Applications were coded using a Scene Graph. A Scene Graph is the starting point of the construction of the GUI Application. It holds the (GUI) application primitives that are termed as nodes.

A node is a visual/graphical object and it may include −

• Geometrical (Graphical) objects − (2D and 3D) such as circle, rectangle, polygon, etc.

• UI controls − such as Button, Checkbox, Choice box, Text Area, etc.

• Containers − (layout panes)

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**b. What is Unicode? Explain. Discuss the various data types available in java programming in detail.**

**Ans:** UNICODE. Universal Character Encoding. UNICODE. Unique, Universal, and Uniform character enCoding.

**Data Types in Java**

Data types

**2. a. Explain the various utilities of ‘super’ keyword in context to inheritance? Explain each utility with the help of java program.**

**Ans:** The super keyword in Java is a reference variable which is used to refer immediate parent class object.

Whenever you create the instance of subclass, an instance of parent class is created implicitly which is referred

**b. How java handles exceptions? Discuss the utility of ‘try’ and multiple ‘catch’ statement with the help of java program.**

**Ans:** The term exception in Java means the occurrence of an exceptional event. It is defined as an abnormality that occurs while the program is in execution which hinders the successful execution of the program, which means the way the program is meant to produce the result it doesn’t do so

**3. What are streams in java? Discuss their various types. Explain at least 5 pre-defined methods and their functionality used through stream classes.**

**Ans:** Java handles all input and output in the form of streams. A stream is a sequence of bytes traveling from a source to a destination over a communication path. If a program writes into a stream, it is the

**Assignment Set – 2**

**1. a. Explain the collection hierarchy with the help of diagram.**

The comprehensive collection framework hierarchy comprises four fundamental interfaces: Collection, List, Set, Map, and two specific interfaces for sorting called SortedSet and SortedMap. The Java.util package contains all of the collection framework's interfaces and classes.

**b. Discuss java annotation, and java custom annotation in detail with the help of java example.**

**Ans**: Java annotations are used to provide meta data for Java code. Being meta data, Java annotations do not directly affect the execution of the code, although some types of annotations can actually be used for that

**2. a. Discuss any 5 component classes of swing. Demonstrate a program which shows their utility.**

#### Ans: 1. ImageIcon

The ImageIcon component creates an icon sized-image from an image residing at the source URL.

**Example:**

**b. What is multithreading? Discuss its life cycle with the help of suitable diagram.**

**Ans:** Java supports multithreaded programming, which allows you to write programs to meet the real-world requirement for creating interactive as well as networked programs. Java supports multithreading which is not

**3. How Java Server Pages can be created? Discuss all the steps involved along with suitable java example.**

**Ans:** Java Server pages are on the whole, text files that combine standard HTML and new scripting tags. JSPs look like HTML, but they get compiled into Java Servlets the first time they are invoked. The resulting servlet is a combination of the HTML from the JSP file and embedded dynamic