13.   Write the difference between checked and unchecked exception with example code

* Checked exception are those exceptions which are checked at compile time. It means if a method is throwing a checked exception then it should handle the exception using try-catch block or it should declare the exception using throws keyword, otherwise the program will give a compilation error. All subclasses of Throwable class except RuntimeException and Error are checked exceptions.

*import java.io.\*;*

*class Example throws IOException{*

*public static void main(String[] args) {*

*FileReader file = new FileReader("C:\\test\\a.txt");*

*BufferedReader fileInput = new BufferedReader(file);*

*// Print first 3 lines of file "C:\test\a.txt"*

*for (int counter = 0; counter < 3; counter++)*

*System.out.println(fileInput.readLine());*

*fileInput.close();*

*}*

*}*

* Unchecked exceptions are not checked at compile time. It means if program is throwing an unchecked exception and even if you didn’t handle/declare that exception, the program won’t give a compilation error. All Unchecked exceptions are direct sub classes of RuntimeException class.

*class Example {*

*public static void main(String args[])*

*{*

*int num1=10;*

*int num2=0;*

*int res=num1/num2;// divide by zero exception*

*System.out.println(res);*

*}*

*}*

14. Write the difference between throw and throws with example code

* Throw is used to throw an Exception whereas throws is used to declare an exception
* Throw is used in method implementation whereas throws is used in method signature

*//throw example*

*class ThrowExcep*

*{*

*static void fun()*

*{*

*try*

*{*

*throw new NullPointerException("demo");*

*}*

*catch(NullPointerException e)*

*{*

*System.out.println("Caught inside fun().");*

*throw e; // rethrowing the exception*

*}*

*}*

*public static void main(String args[])*

*{*

*try*

*{*

*fun();*

*}*

*catch(NullPointerException e)*

*{*

*System.out.println("Caught in main.");*

*}*

*}*

*}*

*//throws example*

*class test*

*{*

*public static void main(String[] args)throws InterruptedException*

*{*

*Thread.sleep(10000);*

*System.out.println("Hello ");*

*}*

*}*

15.   Write a note on nested try…catch block with example code

* When a try catch block is present in another try block then it is called the nested try catch block. Each time a try block does not have a catch handler for a particular exception, then the catch blocks of parent try block are inspected for that exception, if match is found that that catch block executes.

*class Exception{*

*public static void main(String args[]){*

*try{*

*try{*

*System.out.println("Going to divide");*

*int b =39/0;*

*}catch(ArithmeticException e){System.out.println(e);}*

*try{*

*int a[]=new int[5];*

*a[5]=4;*

*}catch(ArrayIndexOutOfBoundsException e){System.out.println(e);}*

*System.out.println("other statement);*

*}catch(Exception e){System.out.println("handeled");}*

*System.out.println("Continue normal flow");*

*}*

*}*

16.   Write a note on MultiThreading and MultiTasking

* Multitasking is a process of executing multiple tasks simultaneously. We use multitasking to utilize the CPU. Multitasking can be achieved by two ways:

a)Process-based Multitasking(Multiprocessing)

b)Thread-based Multitasking(Multithreading)

* Multithreading in java is a process of executing multiple threads simultaneously.

Thread is basically a lightweight sub-process, a smallest unit of processing. Multiprocessing and multithreading, both are used to achieve multitasking.

17. Write a short note on Deque and give example code.

* Deque is a linear collection that supports element insertion and removal at both ends. The name *deque* is short for "double ended queue"
* Since Deque is an interface we need to instantiate a concrete implementation of the interface in order to use it. We can choose between the following Deque implementations in the Java Collections API:

a)java.util.ArrayDeque

b)java.util.LinkedList

*//deque using linked list*

*Deque dequeA = new LinkedList();*

*dequeA.add("element 0");*

*dequeA.add("element 1");*

*dequeA.add("element 2");*

*Iterator iterator = dequeA.iterator();*

*while(iterator.hasNext(){*

*String element = (String) iterator.next();*

*}*

18.   Write a short note on Generics an all types of Parameters used in Generics with example code.

* A generic type is a generic class or interface that is parameterized over type. Before generics, we can store any type of objects in collection i.e. non-generic. Now generics, forces the java programmer to store specific type of objects. The types parameters are as follows:

T - Type

E - Element

K - Key

N - Number

V – Value

//Generic class example

*class MyGen<T>{*

*T obj;*

*void add(T obj){this.obj=obj;}*

*T get(){return obj;}*

*}*

*class genericClass{*

*public static void main(String args[]){*

*MyGen<Integer> m=new MyGen<Integer>();*

*m.add(2);*

*System.out.println(m.get());*

*}}*

19.   Write a short note on Map Interface.

* A map contains values on the basis of key i.e. key and value pair. Each key and value pair is known as an entry. Map contains only unique keys.Map is useful if you have to search, update or delete elements on the basis of key. The Java platform contains three general-purpose Map implementations: HashMap, TreeMap, and LinkedHashMap.

20.   Write the difference between LinkedList and ArrayList.

* ArrayList internally uses dynamic array to store the elements.LinkedList internally uses doubly linked list to store the elements.
* Manipulation with ArrayList is slow because it internally uses array. If any element is removed from the array, all the bits are shifted in memory.Manipulation with LinkedList is faster than ArrayList because it uses doubly linked list so no bit shifting is required in memory.
* ArrayList class can act as a list only because it implements List only.LinkedList class can act as a list and queue both because it implements List and Deque interfaces.
* ArrayList is better for storing and accessing data.LinkedList is better for manipulating data.

21.   Write a note on Dynamic array in java.

* In Java, the size of an array is fixed when it is created. A dynamic array has variable size and allows elements to be added or removed.
* To implement a dynamic array in java we can use a ArrayList

22.   What is the purpose of the System class?

The java.lang.System class contains several useful class fields and methods. Facilities provided by System are

* standard output
* error output streams
* standard input and access to externally defined properties and environment variables.
* A utility method for quickly copying a portion of an array.
* a means of loading files and libraries

23.   Which is the abstract parent class of FileWriter ?

OutputStreamWriter

24.   Which class is used to read streams of characters from a file?

FileReader class

25.   Which class is used to read streams of raw bytes from a file?

FileInputStream class

26.   What are the differences between FileInputStream/FileOutputStream and RandomAccessFile

-The FileInputStream/FileOutputStream class encapsulates the files and directories of the local file system.

- The java.io.RandomAccessFile class implements a random access file.

- Random access file offers a seek feature that can go directly to a particular position.

- Unlike the input and output stream classes in java.io, RandomAccessFile is used for both reading and writing files.

- RandomAccessFile does not inherit from InputStream or OutputStream. It implements the DataInput and DataOutput interfaces.

28.   What is the difference between System.out ,System.err and System.in?

* System.in is an InputStream which is typically connected to keyboard input of console programs. System.in is not used as often since data is commonly passed to a command line Java application via command line arguments, or configuration files. In applications with GUI the input to the application is given via the GUI. This is a separate input mechanism from Java IO.
* System.out is a PrintStream. System.out normally outputs the data you write to it to the console. This is often used from console-only programs like command line tools. This is also often used to print debug statements of from a program
* System.err is a PrintStream. System.err works like System.out except it is normally only used to output error texts

.

35.   Write a note on PreparedStatement and ResultSetMetaData interfaces with code snippets.

* The PreparedStatement interface is a subinterface of Statement. It is used to execute parameterized query. The performance of the application will be faster if you use PreparedStatement interface because query is compiled only once.

*Connection con=DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:xe","system","oracle");*

*PreparedStatement stmt=con.prepareStatement("insert into Emp values(?,?)");*

* A ResultSetMetaData object can be used to find out about the types and properties of the columns in a ResultSet.

*Connection con=DriverManager.getConnection(*

*"jdbc:oracle:thin:@localhost:1521:xe","system","oracle");*

*PreparedStatement ps=con.prepareStatement("select \* from emp");*

*ResultSet rs=ps.executeQuery();*

*ResultSetMetaData rsmd=rs.getMetaData();*

*System.out.println("Total columns: "+rsmd.getColumnCount());*

*System.out.println("Column Name of 1st column: "+rsmd.getColumnName(1));*

*System.out.println("Column Type Name of 1st column: "+rsmd.getColumnTypeName(1));*

36.   Write a note on DDL, DML, DQL with code snippets.

Data Definition Language (DDL) is a unique set of SQL commands that lets you manipulate the structure of the database. All DDL commands are CREATE

* DROP
* ALTER
* TRUNCATE
* COMMENT
* RENAME

DML is short name of Data Manipulation Language which deals with data manipulation and includes most common SQL statements such INSERT, UPDATE, DELETE etc, and it is used to store, modify, delete and update data in a database.

DCL is short name of Data Control Language which includes commands such as GRANT and mostly concerned with rights, permissions and other controls of the database system.

The commands of SQL that are used to retrieve data from the database are collectively called as DQL or data query language. Eg SELECT

37.   Write a note on HTML , CSS and Javascript.

HTML (Hypertext Markup Language) is the set of markup symbols or codes inserted in a file intended for display on a World Wide Web browser page. The markup tells the Web browser how to display a Web page's words and images for the user. Each individual markup code is referred to as an element/tag.

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language. CSS is designed primarily to enable the separation of presentation and content, including aspects such as the layout, colors, and fonts.

Javascript is a dynamic computer programming language. It is lightweight and most commonly used as a part of web pages, whose implementations allow client-side script to interact with the user and make dynamic pages. It is an interpreted programming language with object-oriented capabilities.

Client-side JavaScript is the most common form of the language. The script should be included in or referenced by an HTML document for the code to be interpreted by the browser.

39.   Describe the different approaches of String processing.

Strings are a sequence of characters. In Java, strings are treated as objects.The Java platform provides the String class to create and manipulate strings.

There are two ways to create a String in Java

* String literal
* Using new keyword

The String class is immutable, so that once it is created a String object cannot be changed. If there is a necessity to make a lot of modifications to Strings of characters, then you should use String Buffer & String Builder Classes.