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/*
☐ Java Checked Exception Handling Revision File
All ChExceptionDemo classes in one place with explanations.
⚠ Note: Cannot compile directly (multiple classes with same name).
Use it only for study & revision.
*/

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// ♦ ChExceptionDemo1 → Checked + Unchecked
// Exceptions:
// - Unchecked (Runtime): NumberFormatException if parsing "ab"
// - Checked (Compiletime): IOException from System.in.read()
// Handling: try-catch-finally
// ☑ Conclusion: Demonstrates both checked & unchecked exceptions.
import java.util.*;
import java.io.*;

class ChExceptionDemo1 {
    public static void main(String args[]) {
        System.out.println("start");

        // int i = Integer.parseInt("ab"); // Runtime: NumberFormatException

        try {
            int j = System.in.read(); // Compiletime: IOException
        } catch (IOException e) {
            e.printStackTrace();
        } finally {
            System.out.println("finally");
        }

        System.out.println("stop");
    }
}

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// ♦ ChExceptionDemo2 → Checked
// Exception: IOException from System.in.read()
// Handling: Declares throws IOException in main()
// ☑ Conclusion: Shows handling with throws keyword.
class ChExceptionDemo2 {
    public static void main(String args[]) throws IOException {
        System.out.println("Enter any character:");
        int j = System.in.read();
        System.out.println("Entered char = " + (char) j);
    }
}

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// ♦ ChExceptionDemo3 → Checked
// Exception: IOException inside m2()
// Handling: try-catch inside method
// ✔ Conclusion: Local handling of checked exception.
class ChExceptionDemo3 {
    public static void main(String args[]) {
        m1();
    }
    static void m1() {
        System.out.println("m1() : executed");
        m2();
    }
    static void m2() {
        System.out.println("m2() : executed");
        System.out.println("Enter any character:");
        try {
            int j = System.in.read();
            System.out.println("Character = " + (char) j);
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}

//
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// ♦ ChExceptionDemo4 → Checked
// Exception: IOException from System.in.read()
// Handling: try-catch with debug prints (1..8)
// ✔ Conclusion: Shows control flow with try-catch.
class ChExceptionDemo4 {
    public static void main(String args[]) {
        System.out.println("1");
        m1();
    }
    static void m1() {
        System.out.println("2");
        System.out.println("m1() : executed");
        m2();
        System.out.println("3");
    }
    static void m2() {
        System.out.println("4");
        System.out.println("m2() : executed");
        System.out.println("Enter any character:");
        try {
            System.out.println("5");
            int j = System.in.read();
            System.out.println("Character = " + (char) j);
            System.out.println("6");
        } catch (IOException e) {
            e.printStackTrace();
            System.out.println("7");
        }
    }
}
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    }
    System.out.println("8");
}
}

//
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// ♦ ChExceptionDemo5 → Checked
// Exception: IOException from System.in.read()
// Handling: Method m2() declares throws IOException
// ✔ Conclusion: Shows propagation of checked exception.
class ChExceptionDemo5 {
    public static void main(String args[]) {
        System.out.println("1");
        m1();
    }
    static void m1() {
        System.out.println("2");
        System.out.println("m1() : executed");
        try {
            m2();
        } catch (IOException e) {
            e.printStackTrace();
        }
        System.out.println("3");
    }
    static void m2() throws IOException {
        System.out.println("4");
        System.out.println("m2() : executed");
        System.out.println("Enter any character:");
        System.out.println("5");
        int j = System.in.read();
        System.out.println("Character = " + (char) j);
        System.out.println("6");
        System.out.println("8");
    }
}

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// ♦ ChExceptionDemo6 → Checked
// Exception: IOException from System.in.read()
// Handling: try-catch in main(), calls m1() inside try
// ✔ Conclusion: Checked exception handled at main level.
class ChExceptionDemo6 {
    public static void main(String args[]) {
        System.out.println("1");
        System.out.println("Enter any character:");
        System.out.println("2");
        try {
            int j = System.in.read();
            System.out.println("Character = " + (char) j);
            System.out.println("4");
            m1();

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        System.out.println("5");
    } catch (IOException e) {
        e.printStackTrace();
    }
    System.out.println("8");
}
static void m1() {
    System.out.println("6");
    System.out.println("m1() : executed");
    System.out.println("7");
}
}

//
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// ♦ ChExceptionDemo7 → Checked
// Exception: IOException from System.in.read()
// Handling: main() declares throws IOException (no try-catch)
// ✔ Conclusion: Exception thrown to JVM.
class ChExceptionDemo7 {
    public static void main(String args[]) throws IOException {
        System.out.println("1");
        System.out.println("Enter any character:");
        System.out.println("2");
        int j = System.in.read();
        System.out.println("Character = " + (char) j);
        System.out.println("4");
        m1();
        System.out.println("5");
        System.out.println("8");
    }
    static void m1() {
        System.out.println("6");
        System.out.println("m1() : executed");
        System.out.println("7");
    }
}

//
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// ♦ ChExceptionDemo8 → Checked
// Exception: FileNotFoundException from new FileReader(f)
// Handling: try-catch(FileNotFoundException)
// ✔ Conclusion: Demonstrates file handling with checked exception.
class ChExceptionDemo8 {
    public static void main(String args[]) {
        System.out.println("1");
        File f = new File("abc.txt");
        try {
            System.out.println("2");
            FileReader fr = new FileReader(f);
            System.out.println("3");
        } catch (FileNotFoundException e) {
            e.printStackTrace();
        }
    }
}

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        }
        System.out.println("4");
    }
}

//
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//  ChExceptionDemo9 → Checked
// Exception: FileNotFoundException from new FileReader(f)
// Handling: main() declares throws FileNotFoundException
//  Conclusion: Checked exception propagated to JVM.
class ChExceptionDemo9 {
    public static void main(String args[]) throws FileNotFoundException {
        System.out.println("1");
        File f = new File("abc.txt");
        System.out.println("2");
        FileReader fr = new FileReader(f);
        System.out.println("3");
        System.out.println("4");
    }
}
```