Assignment . **4**

Muhammad **Mujtaba** SP22-BSE-036

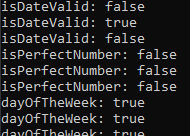
Sir **Rizwan** Rashid

Date: Jan 2, 2023

CODE

**Questions** highlighted with yellow. Output at the end.  
  
*// CLASS* ***ASSIGNMENT*** *4  
  
//* ***MUJTABA*** *SP22-BSE-036  
// SIR* ***RIZWAN*** *RASHID  
// PROGRAMMING FUNDAMENTALS  
// DATE: JAN 2, 2023  
  
// START -*public class Code {  
  
 *// QUESTION . 1* static boolean isLeapYear(int year){  
 return (year % 400 == 0) || ((year % 4 == 0) && (year % 100 != 0));  
 }  
 static boolean isDateValid(int day, int month, int year){  
 if(year < 0) return false; *// BCs are not supported* if(month < 1 || month > 12) return false;  
 if(isLeapYear(year)){ if(month == 2) if(day < 1 || day > 29) return false; }  
 else { if(month == 2) if(day < 1 || day > 28) return false; }  
 if(month % 2 == 0){ if(day < 1 || day > 30) return false; }  
 else { if(day < 1 || day > 31) return false; }  
 return true;  
 }  
  
 *// QUESTION . 2* static boolean isPerfectNumber(int n){  
 int i = 1, sum = 0;  
 while(i <= n/2){ if(n % i == 0){ sum += i; } i++; }  
 if (sum != n) return false;  
 return true;  
 }  
  
 *// QUESTION . 3* static String dayOfTheWeek(int day){  
 switch(day){  
 case 1: return "MO";  
 case 2: return "TU";  
 case 3: return "WE";  
 case 4: return "TH";  
 case 5: return "FR";  
 case 6: return "SA";  
 case 7: return "SU";  
 default: break;  
 }  
 return "NIL";  
 }  
  
 static void assertTrue(String fname, boolean condition){  
 System.out.println(fname + ": " + condition);  
 }  
 static void assertEquals(String fname, String s0, String s1){  
 System.out.println(fname + ": " + s0.equals(s1));  
 }  
  
 *// MAIN* public static void main(String[] args){  
 assertTrue("isDateValid", isDateValid(14,2344,2342));  
 assertTrue("isDateValid", isDateValid(1,2,23));  
 assertTrue("isDateValid", isDateValid(29,2,1000));  
  
 assertTrue("isPerfectNumber", isPerfectNumber(14));  
 assertTrue("isPerfectNumber", isPerfectNumber(3));  
 assertTrue("isPerfectNumber", isPerfectNumber(1024));  
  
 assertEquals("dayOfTheWeek", dayOfTheWeek(0), "NIL");  
 assertEquals("dayOfTheWeek", dayOfTheWeek(7), "SU");  
 assertEquals("dayOfTheWeek", dayOfTheWeek(1), "MO");  
 }  
}  
  
*// - END*

OUTPUT



END