INF3121 – Software testing

**Compulsory Assignment 1**

Part 2

Exercise 5

In this exercise you shall use *equivalence partitions* and *boundary value analysis* to detect failures in a little Java program that sets your horoscope based on your birthday. See the user interface below:

**a)** Determine the different valid equivalence partitions. Can you determine some invalid partitions?

Valid equivalence partitions:

* December 22nd – January 19th
* January 29th – February 18th
* February 19th – March 20th
* March 21st – April 19th
* April 19th – May 20th
* May 21st – June 20th
* June 21st – July 22nd
* July 23rd – August 22nd
* August 23rd – September 22nd
* September 23rd – October 22nd
* October 23rd – November 21st
* November 22nd – December 20th

Invalid partitions:

* February 29th. This date is only once every 4th year.
* June 31st. This date never occurs. June has 30 days
* December 21st. It is a valid date, but gets an error

**b)** Determine the boundary values. You shall now test the program by using the boundary values and values from the

equivalence partitions.(open here)

**c)** There are at least three defects / incidents in this program. Can you find them? Consider the degree of severity of the failures. In what order will you prioritise to correct the defects?

1. December 21st
2. June 31st
3. February 29th

**d)** Use the template below to write an incident report about the defects / incidents you have discovered.

**Exercise 6**

The Oslo City Council wants to introduce a new system for calculating road charges for passage of the toll ring around Oslo. You shall now use decision tables to determine all combinations of conditions to explore the business rules that should be tested according to this system. In addition to introducing a new rush hour charge, the new prices aim to reduce the amount of air pollution in the city. In this exercise, we have specifically chosen to disregard buses and trailers.

* - The “rush hour” is defined as the period from 07:30 until 09:30, and later from 15:30 until 17:30.
* - Electric vehicles are not charged outside the “rush hour” period, but are charged a fee of 30 NOK during peak times.
* - Petrol- and diesel vehicles are required to pay 50 NOK outside the “rush hour” period, and get an additional 100 % increase in the price during peak times.
  + **a)**Set up a decision table with the different business rules, including the conditions and related price. There should be one rule for each combination of conditions.
  + **b)**If there are any combinations (rules) that should *not* occur, you can mark these combinations (rules) with an ‘X’ in the action part of the table. Reduce the number of rules by simplifying (rationalising) the decision table, without losing any of the system functionality.