NATIONAL UNIVERSITY OF SINGAPORE
SCHOOL OF COMPUTING

Mock-Practical Examination 1 for Semester 1, AY2014/15
CS1010J — Programming Methodology

Sep 2014 Time Allowed: 1 hour

[Note: First 10 minutes is reserved for algorithm design; no coding in this period]

Exercise 1: Income Tax [30 marks]

In a certain country, the government collects income tax based on the rates shown in the table below.

Income	Rate (%)	Gross Tax Payable ($)
First $20,000 Next $10,000	0 3	0 300
First $30,000 Next $50,000	- 6	300 3000
First $80,000 Above $80,000	- 10	3300

For example, if you have earned $26000 in the last year, your income tax payable will be calculated as follows:

First $20,000 $0

Next $6,000 at 3% $180

Total tax payable $180

As another example, if your annual income is $78000, the income tax payable is:

First $30,000 $300

Next $48,000 at 6% $2880

Total tax payable $3180

Write a program **Tax.java** to read annual *income* of a person and print out the income *tax* he/she needs to pay. Your program should contain a method `computeTax()` that takes *income* and returns corresponding *tax*.

Both *income* and *tax* are of type `double`. You should correct your output of real number to two decimal places.

Two sample runs are shown below with user's input shown in **bold.**

```
Enter your annual income: 26000
Your tax payable is: 180.00


Enter your annual income: 78000
Your tax payable is: 3180.00
```

Exercise 2: Next Saturday [60 marks]

It is a boring Monday and Monday blues strikes again. You are looking forward to Saturday, so you decide to write a program to calculate the date of the coming Saturday.

Write a program **Saturday.java** to read *month* and *day* of a certain Monday in year 2014, print out the month and day of the Saturday in that week. For example, given that 2014-9-22 is a Monday, next Saturday will be 2014-9-27.

You may assume that resulting Saturday falls in year 2014.

Note that in year 2014, there are

28 days in February;

30 days in April, June, September and November;

31 days in January, March, May, July, August, October and December

Your program should contain a method **printDate()** that prints out the month and day of the Saturday in the required format.

Two sample runs are shown below with user's input shown in **bold.**

```
Enter the date of a Monday in 2014 <month day>: 2 17
Saturday in that week is: February 22


Enter the date of a Monday in 2014 <month day>: 4 28
Saturday in that week is: May 3
```

=== END OF PAPER ===