

Practical 1 – Week 1 Java Basics

1. Write a method that displays the prompt string, reads a floating-point number and returns the number to the calling program.

```
public static double readDouble(String prompt)
```

Here is a typical usage:

```
salary = readDouble("Please enter salary: ");  
payRaise = readDouble("Please enter salary increment in %: ");
```

2. Download the `UserInput` class from Blackboard. Add in at least 2 methods that you think is useful. Check with your tutor if you are on the right track.
3. Write a program that translates a letter grade into a number grade. Letter grades are A, B, C, D, and F. Their numeric values are 4, 3, 2, 1, and 0 respectively.

```
Enter a letter grade: B  
The numeric value is 3.
```

4. The following pseudocode reads 12 temperature values in degrees Celsius (one for each month and in order by month), and displays the month with the highest temperature.

Trace the algorithm using a trace table and translate the codes into a Java program. When hand-tracing a loop, 3 to 5 data values is enough to check for the most common errors.

```
read value  
store value as highest temperature  
set highest month to 1  
for current month from 2 to 12  
    read value  
    if value is higher than the highest temperature  
        set the highest temperature to the value  
        set the highest month to current month  
display the highest month
```

What changes must be made to the program if you want to display the name of the month? For example, you want to display “July” instead of 7.

E-Practical (2 hours)

Attempt to solve the problem before referring to Blackboard for a step by step guide.

5. Write an algorithm to settle the following question:

A bank account starts out with \$10,000. Interest is compounded monthly at 6% per year (0.5% per month). Every month, \$500 is withdrawn to meet college expenses. After how months will the account be completely depleted?

Once the program is working, modify it to prompt for user input as shown:

```
Enter starting account balance($): 10000
Enter compound interest per month(%): 0.5
Enter expense per month($): 500
The account will be completely depleted in 22 months.
```

Perform input validation where appropriate. For example, input for balance must be positive.

-- End --