

Exercises, class 5

1. Here is a partially coded Chronometer class:

```
public class Chronometer {  
    private int hour;  
    private int minute;  
    private double second;  
    ...  
}
```

Code the rest of the class so it has:

- A constructor to initialize the hours, minutes and seconds to 0.
- A constructor to initialize the hours, minutes and seconds to the values passed to the constructor upon creation of a new Chronometer object.
- 3 getters, one for each attribute
- 3 setters, one for each attribute

2.

a) Code a definition for a class named ChessPiece. Its (public) attributes are:

The name of the piece

Its position on the chess board

b) Code a definition for a class named ChessBoard that represents a chess board. Its attributes are:

the height of the board in number of tiles (m tiles) – private attribute

the width of the board in number of tiles (n tiles) – private attribute

a 2D array of type ChessPiece[][] of m rows by n columns – private attribute

public attributes of type ChessPiece, one for each type of piece on the chess board: the pawn, the king, the queen, the bishop, the knight, the rook. The value of each piece is the name of the piece.

c) For the ChessBoard class, code a constructor that takes values to initialize these attributes.

d) For the ChessBoard class, code 3 getters, one for each attribute that is not a chess piece.

e) For the ChessBoard class, code 3 setters, one for each attribute that is not a chess piece.

f) How could encapsulation be improved in this program? No code needed here; just answer the question.

g) How could coupling be reduced in this program? No code needed here; just answer the question.