Artificial Intelligence: Assignment 1

Due date: January 26 (Wednesday)

Problem 1 (2 points)
Read Chapters 1 and 2 of the textbook and answer the following two questions:

(a) Give your own definition of Artificial Intelligence.

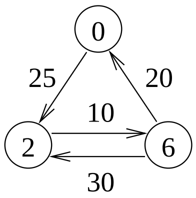
(b) Imagine that the speed and memory of computers became 1000 larger. Which AI problems would become trivial due to this increase, and which would not get any easier?

Problem 2 (4 points)
Implement a program that inputs a weighted directed graph, and finds the shortest path between two given vertices of this graph. Your program must read a graph from a given file, prompt the user to specify two vertices, and output the shortest path between them. The format of the graph encoding is as follows:

```
<vertex> <vertex> <weight>
<vertex> <vertex> <weight>
<vertex> <vertex> <weight>
...
```

Each line encodes an edge, which points from the first to the second vertex, and the weight of this edge. The vertices of the graph are denoted by natural numbers, which may *not* be consecutive; for example, the vertex numbers may be 0, 2, and 6. All edge weights are positive, and they are also encoded by natural numbers. For example, the following graph consists of three vertices (denoted 0, 2, and 6) and four edges:

```
0 2 25
2 6 10
6 0 20
6 2 30
```



Problem 3 (4 points)
Implement a program for solving the *n-queen problem* (see page 64 of the textbook). Your program must input a natural number n and output a placement of n queens on the $n \times n$ chess board, in such a way that no queen attacks any other.