Lab 07: Review

CSE 4108

Structured Programming I Lab

October 2022

Lab Tasks

1. **Numbers!:**

For each integer n in the interval $[a, b]$, $where$ $(1 \leq a \leq b \leq 10^6)$ (given as input) :

- If $1 \leq n \leq 9$, then print the English representation of it in lowercase. That is "one" for **1**, "two" for **2**, and so on.
- If $n > 9$ and it is an even number, then print **"even"**.
- If $n > 9$ and it is an odd number, then print **"odd"**.

Input	**Output**
8 11	eight nine even odd

2. **Lucky Numbers:**

John Doe likes to play with numbers. He considers a number lucky if it contains only 4 or 7 in it. For example, 447474, 477747 is a lucky number. But 400514, 43, 76447 are not. Now, you have to write a C program that can find out whether a number is a lucky number or not.

Input	**Output**
40007	No
477747	Yes

3. **Fibonacci:**

A series of numbers in which each number (Fibonacci number) is the sum of the two preceding numbers. The simplest is the series $0, 1, 1, 2, 3, 5, 8$ etc. Your task is to find the fibonacci sequence within a range n. For example, the fibonacci sequence within range $n = 13$ is $0, 1, 1, 2, 3, 5, 8, 13$ (13 inclusive). The range is $0 < n \leq 25$.

Input	**Output**
13	0 1 1 2 3 5 8 13
21	0 1 1 2 3 5 8 13 21

4. **Foosball:**

Ace loves football very much. One day, as he was watching a foosball match between team A and B, he was writing the players' current positions on a piece of paper. To simplify the situation he depicted it as a number consisting of ***zeros*** and ***ones***. A ***zero*** corresponds to players of one team; a ***one*** corresponds to players of another team. If there are at least 7 players of some team standing in a certain situation, then the situation is considered dangerous for the other team. For example, the situation 110111111101 is dangerous and 010101010 is not. You are given the current situation. Determine whether it is dangerous or not.

(0 = Players of team A, 1 = Players of team B)

Input	Output
11011111110	Yes
101010101	No

5. **Armstrong Number:**

When the sum of the cube of the individual digits of a number (3 digits) is equal to that number, the number is called Armstrong number. For Example, 153 is an Armstrong number because $153 = 1^3 + 5^3 + 3^3$. Your task is to find out whether a given number $n\,(100 \leq n < 10^3)$ is an Armstrong number or not.