**Faculty of Information Technology**

**Final exam**

**Spring  2018**

**Programming Technologies (***total 40 pts.***)**

**Duration**: 3 hours                                                                          **Date:** 05.05.2018

1.   (***5 pts.***) Write program that reads sentences (sequence of words separated by one space) from console and then:
    a.   Outputs number of word in it
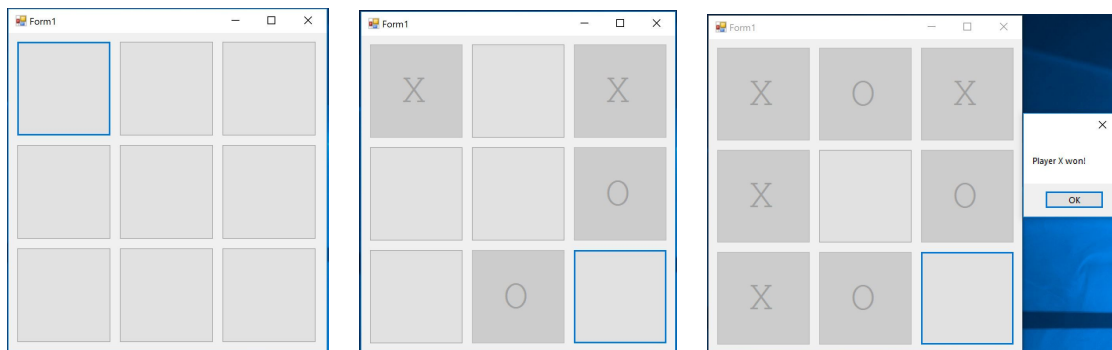    b.   Outputs number of palindrome words in it

     Note: **Palindrome -** is a word which reads the same backward as forward, such as **madam.**

2.   (***7 pts***) You have one folder, which contains several files. In each file written array of numbers separated by space. Show file name in console if the file contains **at least one prime** number in it.

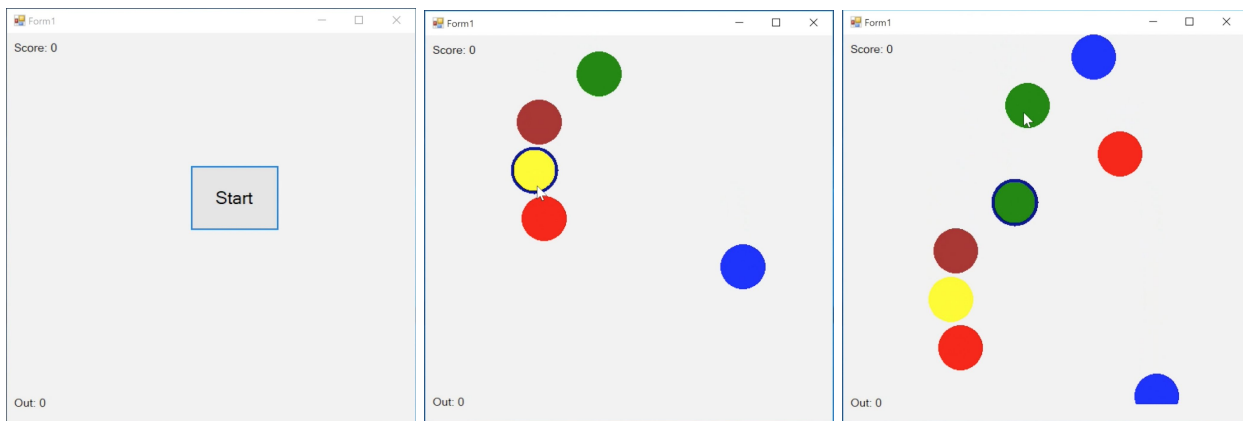3.   (***13 pts.***) Simple Tic Tac Toe.
     Add 9 button to the window, **by code**. Initially, buttons text are empty.
    a.   (***6 pts.***) At each click of some button, clicked button changes text to "X" or "O" alternating. For instance, first clicked button text will be "X", the second one "O", third one "X" and so on. Button becomes disabled after clicking.
    b.   (***7 pts.***) At each button click, check for Game Over. Game overs if one of symbols "X" or "O" appears three times in a row and in diagonals.



Here you can see demonstration: https://youtu.be/4oSFpA6ejMM

4. (**20 pts.**) Graphics, Timer and Mouse Click. Write simple game:
    a. (**5 pts.**) After starting the game, from top of the window at random position appears filled circles and falls down.
    b. (**3 pts.**) Add random color to each new circle
    c. (**7 pts.**) Player can click on the two different circles, sequentially. If their colors are same, they have to be removed from window and score increases.
    d. (**bonus pts.**) When 20 circle leaves the window, the player loses.
    e. (**bonus pts.** ) When the player earns some score, the new level starts with increased speed.



Here you can see demonstration: https://youtu.be/r4KpHxjnfEw

**Minutes #5 of Faculty of Information Technology meeting April 2, 2018**

| | |
|---|---|
| **Teacher** | **Askar K. Akshabayev** |
| | **Beisenbek M. Baisakov** |
| | **Bobur A. Mukhsimbayev** |
| **Dean of FIT** | **Fuad A. Hajiyev** |
| **Deputy Chair of Curriculum Committee** | **Pakizar S. Shamoi** |