

Faculty of Computers, Informatics and Microelectronics
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Event-Driven Programming
Laboratory work #5

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1 Purpose of the laboratory

Collaboration. Complex application.

Contents

- Collaboration
- All previously studied things

Mandatory Objectives

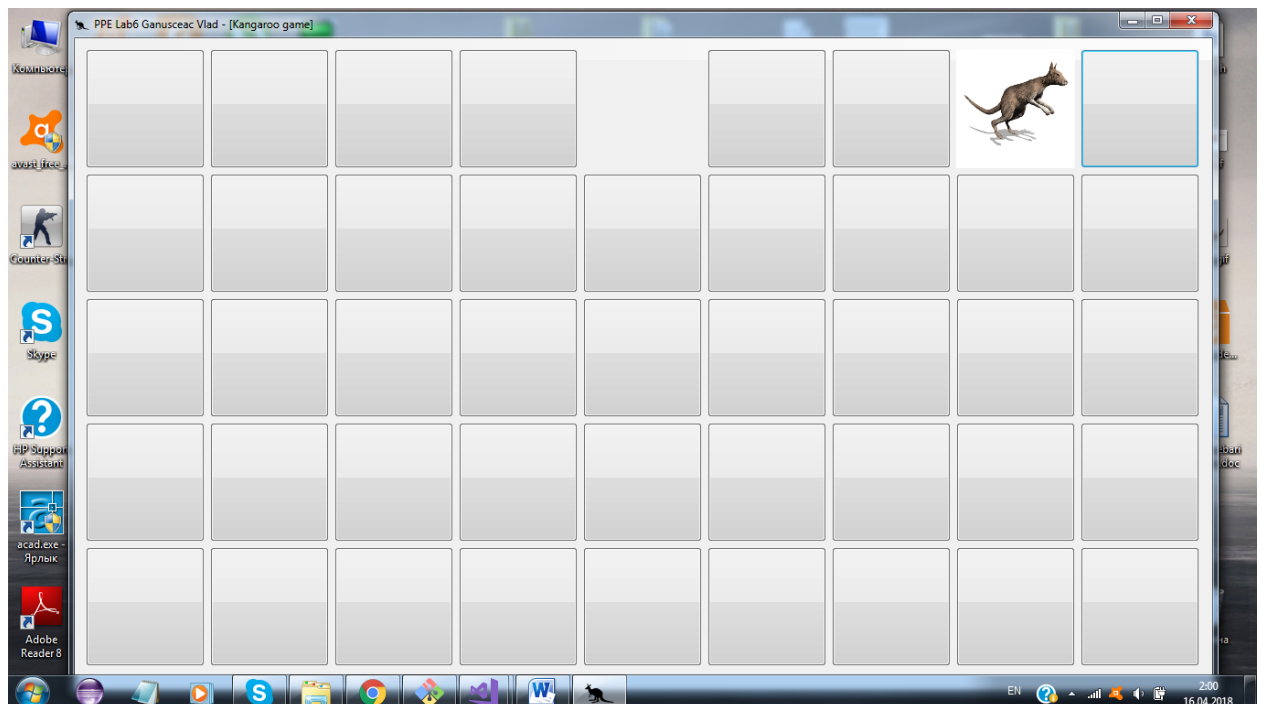
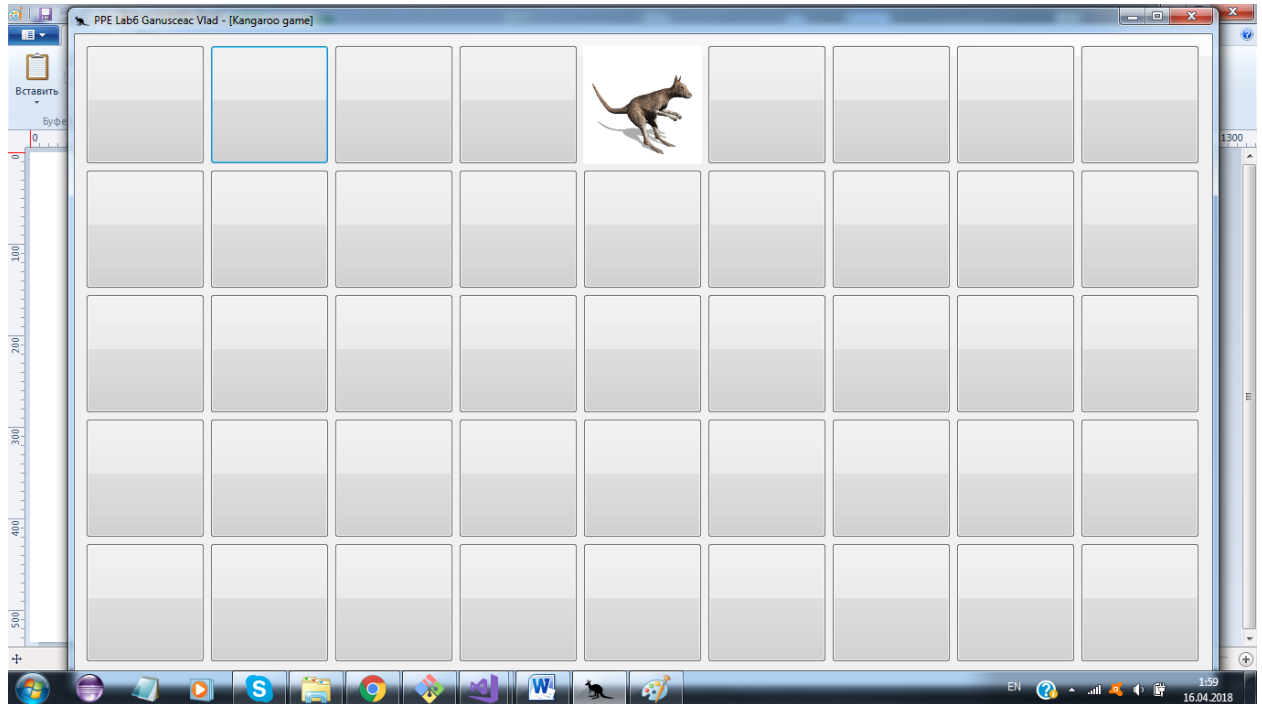
- Create an application which has:
 - Child windows controls
 - GDI animation
- Animation should be controlled by controls

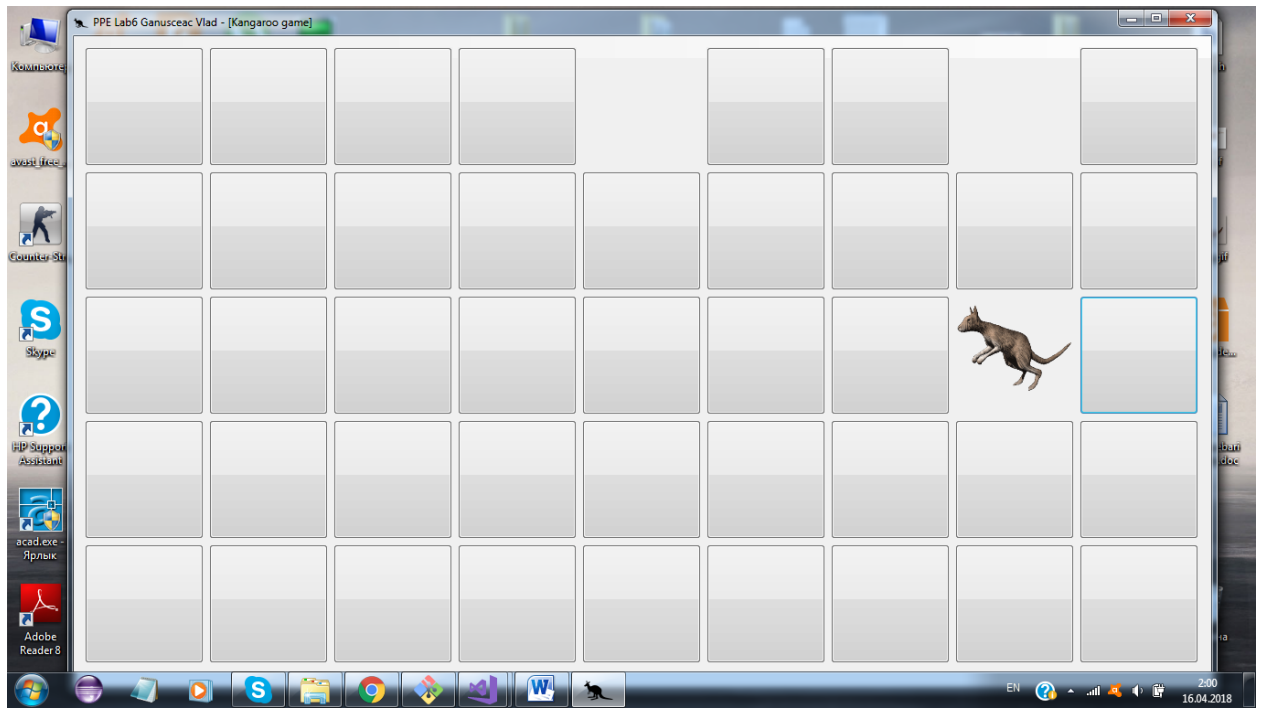
Objectives With Points

- Work on this project in a team of 2-4 (2 pt)
 - Divide tasks and describe them in readme (for each task indicate who is responsible for it) (1 pt)
 - Use pull requests in order to merge your code (2 pt)
- Make it useful (you may be asked (by me) to evaluate the usefulness of your application idea) (0-3 pt)
- First create a sketch, then work on code (1 pt) (*commit sketches early*)

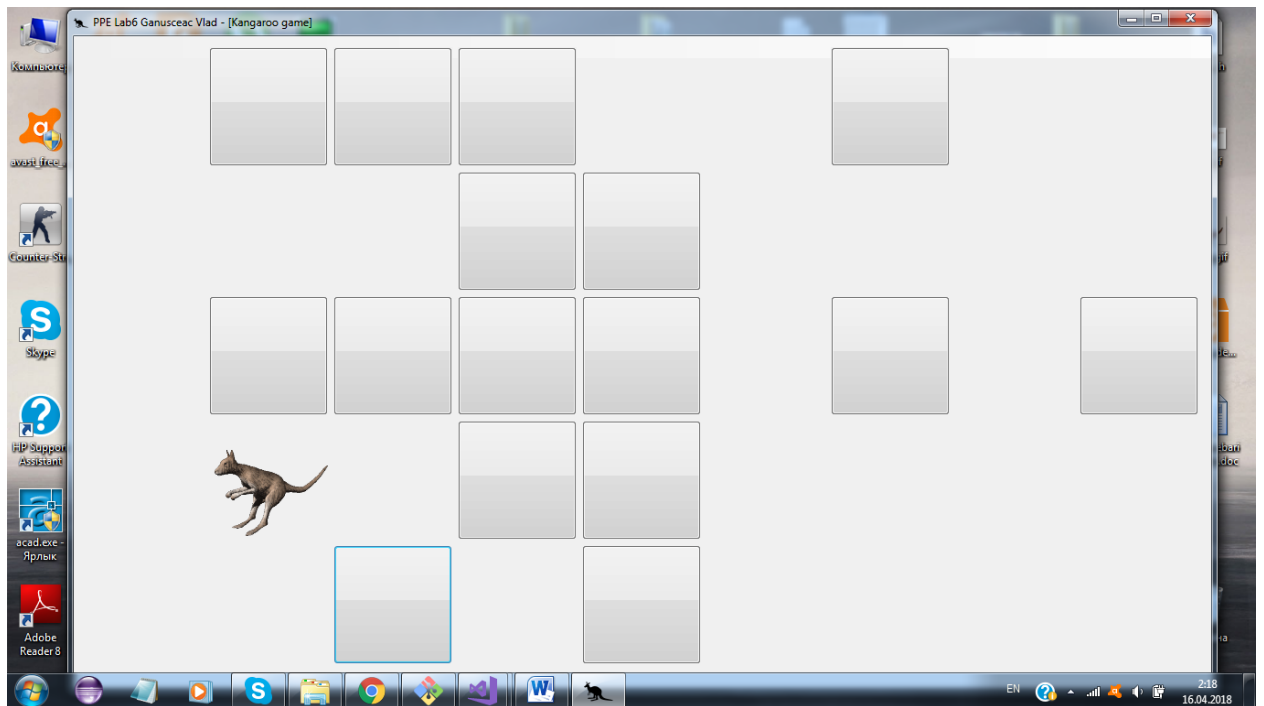
3 Laboratory work implementation

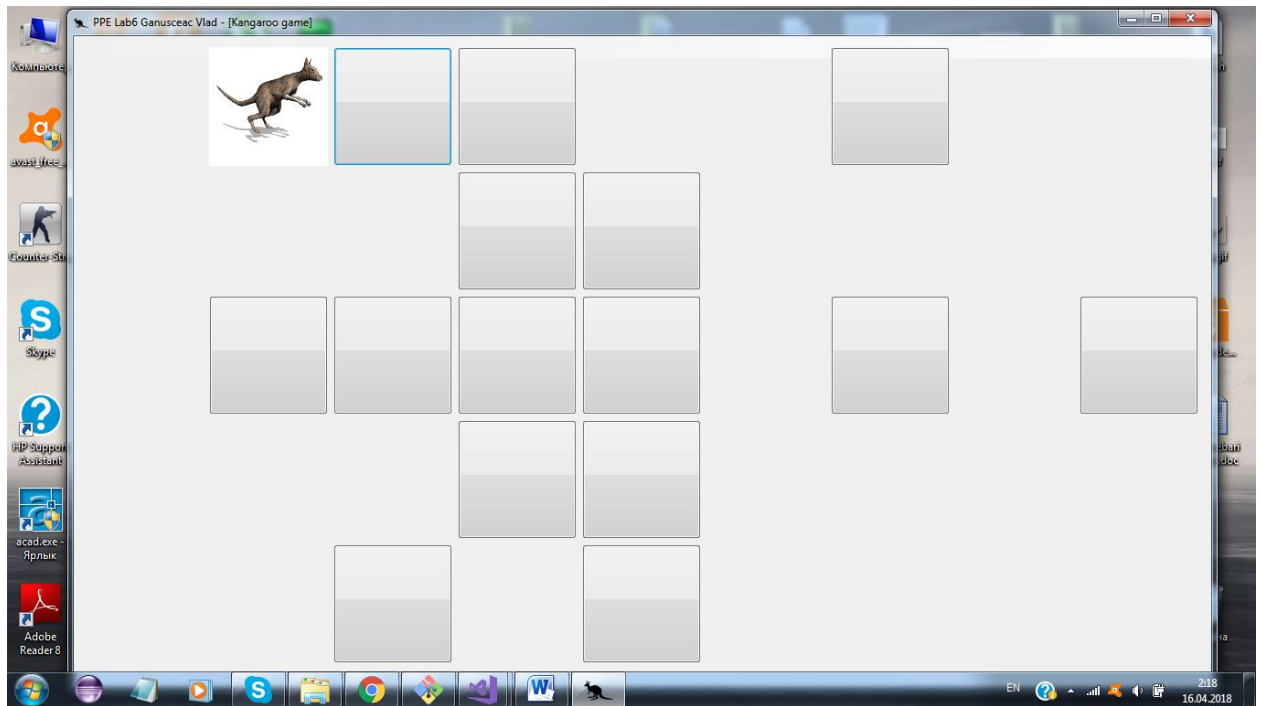
In this laboratory work we have implemented the game kangaroo. It starts at an random field which consists of 45 buttons. The objective of the game is to reach all buttons. The player can't step into invisible button. The button became invisible if the player was previously on it. The kangaroo can jump over 1 or two buttons (vertically or horizontally).





Here is one of the pre-final states of the game:





Which lead to



Frankly speaking, in majority cases the game will end as the lost one. But it is possible to win it!

Conclusion:

The main feature which is implemented is the interaction between the elements: picture boxes – picture boxes, picture boxes – buttons, buttons – buttons. Here were load some gif pictures of a kangaroo which change their state (change each other) by a mathematic formula. In the code were implemented giant switch cases, although there are not mistakes in implementation of the code. The program runs correct. We have checked multiple times the correctness of this game.

The game is useful, because it makes us more persistent and attentive. There is a very – very small probability that You will win the game if you are doing random moves. The proof: the kangaroo can jump over 1 or 2 buttons vertically or horizontally (it means 4 directions). Let consider it 8 cases per button. There are 45 buttons. The initial button (random one) shouldn't be count. So, there are nearly 8^{44} combinations of moves. It is a huge number. Even Brute Force will not help to solve it (it should be used only in pre-final states).

We have played nearly 30 games and 2 of them were won. So, the probability (if You play right) may be $[\frac{1}{15} \dots \frac{1}{10}]$. Now it is clear that this game is closely linked with Game Theory. That's why it is meaningful.

Besides, I hope it will be pleasure for You to play this game!