Good morning/afternoon, the esteemed members of the commission and other listeners. It is my turn to present my course work and its thesis is “Development of the “Pong” game”. This work has been done by Denys Datsenko and the academic advisor is Yuliya Hrebenovych.

An objective of the work was to become acquainted and to learn the algorithms of movement in two-dimensional graphics and to create a computer game “Pong” for amusement.

The main tasks of the work were to analyze the methods of movement implementation and to implement the actual game in a type of software format which would be easy to use.

Let’s start with a short explaining of the game concept and its history. “Pong” is one of the earliest arcade video games and the very first sports arcade video game. It is a table tennis sports game featuring simple two-dimensional graphics. Pong was one of the first video games to reach mainstream popularity. This simple game features two paddles and a ball. The goal is to defeat your opponent by being the first one to gain 10 points, a player gets a point once the opponent misses a ball. In this case, the game can be played with one player against a computer-controlled paddle.

The program is written in C# programming language with Windows Forms library using the Microsoft Visual Studio. These three were chosen due to their accessibility and ease of use despite the kind of popular opinion that Windows Forms has become “old-tech”. Its capacities are more than enough to create simple programs like this one.

Let’s move on to examinating of the algorithms used in this project. Each of the paddles and a ball are controlled by timers which run very quickly creating a new element on the screen and deleting the previous one. This algorithm is used to imitate the movement.

Algorithm of the movement of computer-controlled paddle is pretty simple as well. It consists of two if-statements. One of them will not let the paddle leave the form borders and the second one always follows the ball depending on its location (detecting is it higher or lower than the sum of the top coordinate of PC paddle and height of the PC paddle divided by two).

The movement of the ball is controlled by two variables which can take positive or negative numbers (which are generated in a Random class in a separate subprogram) and which change with each collision with either horizontal borders of the form or the paddles, if the player or the computer will catch the ball.

Each of the paddles is divided into 5 identical parts, represented as a bool method and called in a “Collision” subprogram which detects the exact numbers for the variables controlling the ball (I mentioned them before) and assigns them.

When the ball leaves the playing field, it is checked whether one of the players have gained 10 points. If this statement is true, the variables where the score is stored change their value to 0, each of the paddles and a ball are coming back to their start positions and the “Start Game” button is being shown. If it is false, then one of the players gets one point depending on the ball’s position on the playing field (is it on the left or the right part of it) and the ball comes back on its starting position which is center of the field.

Now let’s move on to demonstrating the result of the project and its graphic components. The interface consists of two rectangular paddles and a square ball. The blue paddle is controlled by user either by W/S or Up Arrow/Down Arrow, the red one is controlled by the computer. The score for each of the players is shown on the top part of the window. “Start Game” button is located on the bottom part of the form. Let’s start the game. (показую) Basically that’s it, I don’t think we have to spend too much time as I’ve described the interface and the algorithms.

So, my report is coming to the end. It is time to draw conclusions. This course work was dedicated to creating a software product for entertaining and learning the basics of movement algorithms in simple video games like this one. This project may be useful for other people who have started learning programming. It is really easy to use and simple. In the future this work may be improved by adding more graphic elements, the possibility of playing with 2, 3 or 4 players, adding the parameters which will control the speed of the paddles and the ball or their appearance and the possibility to create a ranking for different players playing on the same device. Thank you for your attention. Now it is time for questions.