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| **Purpose/Overview**  This program creates a one player game with three levels.  **Requirements**  This program creates a game for the user to play and enjoy.  **Classes**  What classes do you need to create?   * Describe the purpose of each class. * What member data will they have? Why? * What methods will they have? Why?   Make sure you describe each member variable and member function.  The class Emag controls the game and has member variables gameOver, gameWon, gameStart, paused, xCharacter, yCharacter, timerId, lives, level, score, randnum and rNum. It has functions paintEvent, timerEvent, keyPressEvent, mouseMoveEvent, victory, checkCollision, startGame, pauseGame, stopGame, scoreChanged, levelChanged, livesChanged.  The class character has member variables image, rect, xD and yD. It has methods to allow the character to move left, right, up and down, and also automove. The position of this character is controlled by the user.  The class animal has member variables xDir, yDir, controlling direction of automovement, and image, appear, and rect for the image to show. Appear controls whether the image is shown onto the screen. The animals and objects, bull, pig, crow, chicken, bee, dog, bullet, and egg all inherit from this class.  The classes treasure and doghouse both have an image, rect, x, y, and a bool for hit. These items do not move but react when something comes into contact.  The class levels has variables for image, rect, appear, x, y. This object does not move and usually a background. The classes, levelone, leveltwo, levelthree, win and lose all inherit from this class.  The class emagwindow allows for buttons and reacting scoreboard. This contains the button for start pause and quit and also the board for score, level and lives.  **Global Data/Functions**  N/A  **High-level Architecture**  The player controls the character and must lead the character to the treasure box. There are various obstacles in the way including almost all animals. Touching the Crow, Chicken and Dog will not cause the player to lose lives. However, touching an egg, bullet, bull, pig or bee will cause the player to lose a life.  Touching the doghouse will not affect score or lives, only controlling whether the dog appears or disappears. Reaching the red heart will result in 1 added to lives.  The Crow and Chicken shoot randomly according to a random number generator. Their movement follows the character either on it’s x or y axis. The bees also move in a random manner around the screen.  The player wins when he/she receives 35 points.  **User Interface**  The player controls the character using mouse movement. The character follows the mouse. The player is also able to restart, stop, and pause the game by pressing the button on the side.  **Test Cases**   * Press the button for “Play” and test if game starts * Move the mouse and see if the character follows * Move the character to a treasure chest and check if score increases. * Bump into pig, bull, and bee and check if lives decrease. * Bump into bullets and eggs and check if lives decrease. * Bump into hearts and check if lives increase. * Bump into chicken and crow and make sure there is no change in lives. * Play to each level and check if background changes * Play to victory and check victory screen. * Lose the game to check game over screen   **Source of Artwork**  The pictures all come from the video game series Harvest Moon by Nintendo, Natsume, and Rising Star Games. |