Tizen课程项目报告  
《五子棋》

## 项目简介

五子棋是在一个15\*15的棋盘上，双方分别执黑子和白子下在棋盘横线和竖线的交叉点上，先形成五子线者获胜。它是一种受到全世界很多人喜爱的棋类项目。

## 需求分析



## 概要设计

五子棋基于TIZEN web project开发，主要使用了Html与Javascript技术。通过在onDown方法中计算手指触碰的位置来判断用户要在哪里落子。通过update方法更新棋盘，画上新下的棋子。

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| 接口 | 接口功能 |
| drawRect | 初始化游戏界面 |
| play | 手指在棋盘上的点击事件处理 |
| judge | 判断是否有人胜利，或者和棋 |
| drawChess | 更新棋盘，画上新下的棋子 |

## 核心算法

五子棋核心算法代码如下图所示。

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| <script type="text/javascript">  var canvas;  var context;  var isWhite = true;  var isWell = false;  var img\_b = new Image();  img\_b.src = "images/b.png";  var img\_w = new Image();  img\_w.src = "images/w.png";  var chessData = new Array(15);  for (var x = 0; x < 15; x++) {  chessData[x] = new Array(15);  for (var y = 0; y < 15; y++) {  chessData[x][y] = 0;  }  }  function drawRect() {  canvas = document.getElementById("canvas");  context = canvas.getContext("2d");  for (var i = 0; i <= 320; i += 20) {  context.beginPath();  context.moveTo(0, i);  context.lineTo(320, i);  context.closePath();  context.stroke();  context.beginPath();  context.moveTo(i, 0);  context.lineTo(i, 320);  context.closePath();  context.stroke();  }  }  function play(e) {  var x = parseInt((e.clientX - 10) / 20);  var y = parseInt((e.clientY - 10) / 20);  if (chessData[x][y] != 0) {  alert("You cannot put your chess here!");  return;  }  if (isWhite) {  isWhite = false;  drawChess(1, x, y);  }  else {  isWhite = true;  drawChess(2, x, y);  }  }  function drawChess(chess, x, y) {  if (isWell == true) {  alert("Game is over, please refresh to start.");  return;  }  if (x >= 0 && x < 15 && y >= 0 && y < 15) {  if (chess == 1) {  context.drawImage(img\_w, x \* 20 + 10, y \* 20 + 10);  chessData[x][y] = 1;  }  else {  context.drawImage(img\_b, x \* 20 + 10, y \* 20 + 10);  chessData[x][y] = 2;  }  judge(x, y, chess);  }  }  function judge(x, y, chess) {  var count1 = 0;  var count2 = 0;  var count3 = 0;  var count4 = 0;  for (var i = x; i >= 0; i--) {  if (chessData[i][y] != chess) {  break;  }  count1++;  }  for (var i = x + 1; i < 15; i++) {  if (chessData[i][y] != chess) {  break;  }  count1++;  }  for (var i = y; i >= 0; i--) {  if (chessData[x][i] != chess) {  break;  }  count2++;  }  for (var i = y + 1; i < 15; i++) {  if (chessData[x][i] != chess) {  break;  }  count2++;  }  for (var i = x, j = y; i >= 0, j >= 0; i--, j--) {  if (chessData[i][j] != chess) {  break;  }  count3++;  }  for (var i = x + 1, j = y + 1; i < 15, j < 15; i++, j++) {  if (chessData[i][j] != chess) {  break;  }  count3++;  }  for (var i = x, j = y; i >= 0, j < 15; i--, j++) {  if (chessData[i][j] != chess) {  break;  }  count4++;  }  for (var i = x + 1, j = y - 1; i < 15, j >= 0; i++, j--) {  if (chessData[i][j] != chess) {  break;  }  count4++;  }  if (count1 >= 5 || count2 >= 5 || count3 >= 5 || count4 >= 5) {  if (chess == 1) {  alert("White Win");  window.location.reload();  }  else {  alert("Black Win");  window.location.reload();  }  isWell = true;  }  }  </script> |

## 软件功能界面

