

**Course Experiment Report**

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| **Course:** | Java Programming Language | | | | | | |
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| **Semester:** | 1-18th | **week** | 2nd | **year** | | 1st | **term** |
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| **Major:** | Software Engineering Class | | | | | **Class:** | 2018 |
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| **Teacher:** | Wang Xiaomeng | | | | | | |

College of Computer and Information Science

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| Project | Controlling Execution | | |
| Time | 2019.9.20 | Type | □Verification □Design □Synthetical |
| **1. Objective**  Through this training, to grasp selection and looping statements, and understand how to program with them.  **2. Requirement**  Programming the following exercise  **Problem 1:** Point in a circle?        **Problem 2:** scissor-rock-paper  (*Game: scissor, rock, paper*) Write a program that plays the popular scissor-rockpaper game. (A scissor can cut a paper, a rock can knock a scissor, and a paper can wrap a rock.) The program randomly generates a number **0**, **1**, or **2** representing scissor, rock, and paper. The program prompts the user to enter a number **0**, **1**, or **2** and displays a message indicating whether the user or the computer wins, loses, or draws. Revise the program to let the user continuously play until either the user or the computer wins more than two times than its opponent.      **3. Content and design of experiment(main content, operations, algorithm description or code of program)**  **Problem 1:** Point in a circle?  **Solutions:**   1. 利用Scanner读入圆的半径； 2. While死循环，在输入特定字符“n”或“N”时跳出循环； 3. 用Math中的sqrt（）开方函数算出点到圆心的距离； 4. 将距离与半径进行比较后得出结果；   **Codes:**    **Results:**    **Summary:**   1. 比较字符串时不能用“==”，需要用equal（）函数； 2. 多次判断时，先用死循环，在输入特定字符时跳出循环； 3. String.format()函数用来规范化输出，%.2f可以保留两位小数；   **Problem 2:** scissor-rock-paper  **Solutions:**   1. 创建字符串数组String[] selections = {"Rock","Sissor","Paper"}； 2. 使用while循环，当人或电脑赢 的次数大于等于2时，跳出循环，并结束游戏； 3. 使用random（）函数生成0~1范围内随机数，将生成的随机数×3后取整（int）即可得到随机的0,1,2，分别代指数组中的三个元素。 4. 显示双方出拳结果，用数组下标调出对应字符串； 5. 对双方出拳结果做差，判断胜负，差为-1或2则被减数方赢，差为0为平局，其它情况另一方胜； 6. 当某一方胜局达到2次时，游戏结束，输出最终结果。   **Codes:**      **Results:**    **Summary:**   1. 使用random（）函数只能生成0~1范围内随机数，若需要其他范围的随机数，对其进行四则运算即可； 2. 数据类型的强制转换，在前面加（int）即可； 3. 通过对结果做差，减少结果的分类情况； | | | |

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| Teacher’s  comments | content and design of experiment（A-E）： |  |
| operations, algorithm description or code of program（A-E）： |  |
| results（A-E）： |  |
| summary and analysis of experiment（A-E）： |  |
| Grade（A-E）： | |