

# Game Genesis Java Test - Call Center

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1. 請至以下GitHub位置 <https://github.com/AlanChen821/CallCenter.git> download相關程式碼，共有5份class檔：
  1. **CallCenter.java** - 內含main function，涵蓋系統完整流程的主程式，包括Fresher, Technical Lead & Product Manager的變數宣告與執行等。
  2. **Employee.java** - Fresher, TechnicalLead 與 ProductManager的base class.
  3. **Fresher.java** - definition of Fresher class.
  4. **TechnicalLead.java** - definition of TechnicalLead class.
  5. **ProductManager.java** - definition of ProductManager class.下載完畢後請將以上5支class放置於同一目錄中。
2. 於該目錄透過javac CallCenter.java指令build出 CallCenter.class檔。
3. 透過 java CallCenter {args} 指令可依所指定參數執行程式，以下列舉所開放參數內容：
  1. **fresherPoolSize** : 該系統中所包含的fresher個數，如未提供則系統預設為5。
  2. **technicalLeadpoolSizeKey** : 該系統中所包含的Technical Lead(TL)個數，如未提供則系統預設為1。
  3. **productManagerPoolSizeKey** : 該系統中所包含的Product Manager(PM)個數，如未提供則系統預設為1。
4. 程式初始階段將從command 讀取args array, 將參數記錄於HashMap, 後續依各種角色的size建立對應的角色數量至pool中。  
各角色其命名規則為 -  
**Fresher : fresher{編號}.**  
**Technical Lead : TL{編號}.**  
**Product Manager : PM{編號}.**  
以上編號均為4碼字串，如不足將於左方自動補0至4碼，如fresher0001, TL0002, PM0003等。
5. 程式執行階段將每隔一段時間(0 ~ 5秒由隨機種子亂數決定)自動產生一筆新的工作(call), 並依序判斷 Fresher, TL 與 PM 是否有 idle 且足以勝任的角色，若有則將該call委任與他，並立刻開始處理。
6. 是否勝任的判定方式為：  
該call建立時將決定該call的困難度(level), 為1 ~ 6中由隨機種子亂數決定的整數. Fresher可處理 level >= 2, TL 可處理 level >= 1, PM則可處理 level >= 0(即所有level)的call.  
若所有Fresher均不為idle, 或有idle的fresher卻無法勝任該call, 將交由TL判定; 若無idle中的TL或無法處理該call則將再交由PM處理。如仍無idle中的PM則該call將待一段時間後再重試。
7. 程式處理過程將輸出各role所負責處理的call, 其結果可參考附圖：

```
Projects — -bash — 86x47
2021/02/22 03:19:51 : fresher0000 starts to handle call 56.
2021/02/22 03:19:53 : fresher0001 starts to handle call 57.
2021/02/22 03:19:56 : fresher0002 starts to handle call 58.
2021/02/22 03:19:59 : fresher0001 starts to handle call 59.
2021/02/22 03:20:00 : fresher0003 starts to handle call 60.
2021/02/22 03:20:00 : fresher0004 starts to handle call 61.
2021/02/22 03:20:02 : fresher0000 starts to handle call 62.
2021/02/22 03:20:02 : fresher0005 starts to handle call 63.
2021/02/22 03:20:03 : fresher0006 starts to handle call 64.
2021/02/22 03:20:04 : fresher0007 starts to handle call 65.
2021/02/22 03:20:04 : fresher0001 starts to handle call 66.
2021/02/22 03:20:06 : fresher0002 starts to handle call 67.
2021/02/22 03:20:09 : fresher0000 starts to handle call 68.
2021/02/22 03:20:12 : fresher0002 starts to handle call 69.
2021/02/22 03:20:14 : fresher0000 starts to handle call 70.
2021/02/22 03:20:17 : fresher0001 starts to handle call 71.
2021/02/22 03:20:17 : TL0000 starts to handle call 72.
2021/02/22 03:20:19 : fresher0002 starts to handle call 73.
2021/02/22 03:20:21 : fresher0000 starts to handle call 74.
2021/02/22 03:20:22 : TL0001 starts to handle call 75.
2021/02/22 03:20:24 : fresher0001 starts to handle call 76.
2021/02/22 03:20:25 : fresher0002 starts to handle call 77.
2021/02/22 03:20:28 : fresher0003 starts to handle call 78.
2021/02/22 03:20:29 : fresher0004 starts to handle call 79.
2021/02/22 03:20:31 : fresher0000 starts to handle call 80.
2021/02/22 03:20:33 : fresher0001 starts to handle call 81.
2021/02/22 03:20:34 : TL0000 starts to handle call 82.
2021/02/22 03:20:34 : fresher0002 starts to handle call 83.
2021/02/22 03:20:37 : fresher0000 starts to handle call 84.
2021/02/22 03:20:39 : fresher0001 starts to handle call 85.
2021/02/22 03:20:40 : fresher0002 starts to handle call 86.
2021/02/22 03:20:41 : fresher0003 starts to handle call 87.
2021/02/22 03:20:42 : fresher0004 starts to handle call 88.
2021/02/22 03:20:43 : fresher0000 starts to handle call 89.
2021/02/22 03:20:45 : fresher0001 starts to handle call 90.
2021/02/22 03:20:46 : TL0000 starts to handle call 91.
2021/02/22 03:20:49 : fresher0002 starts to handle call 92.
2021/02/22 03:20:51 : fresher0000 starts to handle call 93.
2021/02/22 03:20:53 : fresher0001 starts to handle call 94.
2021/02/22 03:20:54 : fresher0003 starts to handle call 95.
2021/02/22 03:20:54 : fresher0004 starts to handle call 96.
2021/02/22 03:20:56 : fresher0002 starts to handle call 97.
2021/02/22 03:20:59 : fresher0000 starts to handle call 98.
2021/02/22 03:21:00 : fresher0003 starts to handle call 99.
2021/02/22 03:21:00 : TL0000 starts to handle call 100.
2021/02/22 03:21:00 : all the calls have been processed.
chenshixuande-MacBook-Pro:Projects alanchen$
```

説明