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| CS3343-LA3 2014/15 Sem A December 5, 2014 | B.T.  Bug Report | |
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| Bug 00004 – Program always returns the same schedule with one session only | | | |
| **Status:** | RESOLVED FIXED | **Assigned To:** | Kwan Tsz Ho |
| **Product:** | Timetable Scheduling System | **Reported:** | Nov 25, 2014 19:12:32 HKT |
| **Version:** | v0.8.7 | **Modified:** | Nov 25, 2014 20:26:29 HKT |
| **Platform:** | PC | **Target Milestone:** | v0.8.8 |
| **OS:** | Windows 7 |  |  |
| **Importance:** | High |  |  |

Kwan Tsz Ho Nov 25, 2014 19:12:32 HKT

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| The data file is CS3343-data2.txt. There are only 2 constraints, requiring both session with CRN 60002 and 50005. After running the program, it is expected to have the following result:  |-------------------------|  | Visualized timetable |  |------------|------------|------------|------------|------------|------------|------------|------------|  |Time |Monday |Tuesday |Wednesday |Thursday |Friday |Saturday |Sunday |  |------------|------------|------------|------------|------------|------------|------------|------------|  |0800-0850 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |0900-0950 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1000-1050 |CS2112-T03 |CS2010-C0A |CS2201-C0A | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1100-1150 |CS3332-T0A |CS2010-C0A |CS2201-C0A | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1200-1250 | | |CS2205-T01 | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1300-1350 |CS3332-C0A |CS2010-T0A |CS2201-T0A |CS4321-T02 | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1400-1450 |CS3332-C0A | |CS2205-C0A | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1500-1550 |CS3332-C0A | | |CS4321-C01 |CS2332-L0A | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1600-1650 |CS2112-C0A | | |CS4321-C01 |CS2332-L0A | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1700-1750 |CS2112-C0A | | | |CS2332-C0A | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1800-1850 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1900-1950 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |2000-2050 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |2100-2150 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |2200-2250 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  List of CRNs: [40018, 10003, 10001, 40013, 20006, 20008, 40015, 50002, 40011, 50001, 30014, 20011, 60002, 50005]  However, the following table is shown:  |-------------------------|  | Visualized timetable |  |------------|------------|------------|------------|------------|------------|------------|------------|  |Time |Monday |Tuesday |Wednesday |Thursday |Friday |Saturday |Sunday |  |------------|------------|------------|------------|------------|------------|------------|------------|  |0800-0850 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |0900-0950 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1000-1050 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1100-1150 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1200-1250 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1300-1350 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1400-1450 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1500-1550 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1600-1650 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1700-1750 | | | | |CS2332-C0A | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1800-1850 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1900-1950 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |2000-2050 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |2100-2150 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |2200-2250 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  List of CRNs: [50005]  The program did not prompt any errors or quitted unexpectedly. |

Kwan Tsz Ho Nov 25, 2014 20:26:29 HKT

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| It is discovered that the sortByStartTime method in Timetable.java is faulty.  It was originally written as a recursive function:   |  | | --- | | public void sortByStartTime(Timetable timetable, Timetable result) { | | if (timetable.size() == 1) { | | result.add(timetable.get(0)); | | return; | | } | |  | | double min = Double.MAX\_VALUE; | | int minIdx = 0; | | for (int i=0; i<timetable.size(); i++) { | | if (timetable.get(i).getStartTime()+(timetable.get(i).getDay()-1)\*24 < min) { | | min = timetable.get(i).getStartTime()+(timetable.get(i).getDay()-1)\*24; | | minIdx = i; | | } | | } | |  | | result.add(timetable.get(minIdx)); | | timetable.remove(minIdx); | | sortByStartTime(timetable, result); | | } |   However, the base case only add the first timeslot in the timetable to the result and return. The size of timetable would not ever reach 1 again. Also, it is discovered that the TimeGapConstraint did not tackle with the case of overlapping time slots. Its default return is true such that faulty results would be generated.  In order to solve this, the function is modified as the following, removing the recursive feature:   |  | | --- | | public void sortByStartTime() { | | ArrayList<Timeslot> result = new ArrayList<Timeslot>(); | |  | | while (this.timeslots.size() > 0) | | { | | double min = Double.MAX\_VALUE; | | int minIdx = 0; | | for (int i=0; i<this.size(); i++) { | | if (this.get(i).getStartTime()+(this.get(i).getDay()-1)\*24 < min) { | | min = this.get(i).getStartTime()+(this.get(i).getDay()-1)\*24; | | minIdx = i; | | } | | } | |  | | result.add(this.get(minIdx)); | | this.remove(minIdx); | | } | | this.timeslots = result; | | } | |

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| Bug 00003 – Timeslot permutation error | | | |
| **Status:** | RESOLVED FIXED | **Assigned To:** | Lo Weng Kuai |
| **Product:** | Timetable Scheduling System | **Reported:** | Nov 24, 2014 11:20:37 HKT |
| **Version:** | v0.8.0 | **Modified:** | Nov 25, 2014 13:01:11 HKT |
| **Platform:** | PC | **Target Milestone:** | v0.8.1 |
| **OS:** | Windows 7 |  |  |
| **Importance:** | Normal |  |  |

Lo Weng Kuai Nov 24, 2014 11:20:37 HKT

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| Actual Output:    Expected Output:    Duplicated courses in the timetable. |

Lo Weng Kuai Nov 25, 2014 13:01:11 HKT

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| When generate the timetable, the class with same course session should be ion the same day. Each session should have a unique session id. But the result show that the course with the same session id appear on two different days.  This bug cause error and not corrects permutation result. Therefore I change the codes in the main, to correct this error and debug.  Before:    After: |

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| Bug 00002 – The output cannot be displayed | | | |
| **Status:** | RESOLVED FIXED | **Assigned To:** | Cheng Suk Yin |
| **Product:** | Timetable Scheduling System | **Reported:** | Nov 10, 2014 21:21:18 HKT |
| **Version:** | v0.6.0 | **Modified:** | Nov 15, 2014 09:08:12 HKT |
| **Platform:** | PC | **Target Milestone:** | v0.7 |
| **OS:** | Windows 7 |  |  |
| **Importance:** | High |  |  |

Cheng Suk Yin Nov 10, 2014 21:21:18 HKT

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| Failure from automated test, the timetable cannot be displayed;  The program should accept the input of the course information and generate a suitable timetable and is expected to return as follow:   |  | | --- | |  |   However, the output of the program is shown as follow:   |  | | --- | | {CS2332={Tutorial=[CS2332-LA1, CS2332-L0A, CS2332-LA3], Lecture=[CS2332-C0A]}, CS3332={Tutorial=[CS3332-T0A, CS3332-T02, CS3332-T03], Lecture=[CS3332-C0A, CS3332-C02]}, CS4321={Tutorial=[CS4321-T0A, CS4321-T02, CS4321-T03], Lecture=[CS4321-C01, CS4321-C0A]}, CS2112={Tutorial=[CS2112-T0A, CS2112-T02, CS2112-T03], Lecture=[CS2112-C0A]}, CS2201={Tutorial=[CS2201-T01, CS2201-T0A, CS2201-T03], Lecture=[CS2201-C0A, CS2201-C02]}, CS2010={Tutorial=[CS2010-T0A, CS2010-T02, CS2010-T03], Lecture=[CS2010-C0A, CS2010-C02]}, CS2205={Tutorial=[CS2205-T01, CS2205-T0A, CS2205-T03], Lecture=[CS2205-C0A]}}  Exception in thread "main" java.lang.OutOfMemoryError: Java heap space  at java.util.Arrays.copyOf(Arrays.java:2245)  at java.util.Arrays.copyOf(Arrays.java:2219)  at java.util.ArrayList.grow(ArrayList.java:242)  at java.util.ArrayList.ensureExplicitCapacity(ArrayList.java:216)  at java.util.ArrayList.ensureCapacityInternal(ArrayList.java:208)  at java.util.ArrayList.addAll(ArrayList.java:561)  at schedule.Schedule.permutateArrayList(Schedule.java:358)  at schedule.Schedule.GeneratePermutations(Schedule.java:376)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381)  at schedule.Schedule.GeneratePermutations(Schedule.java:381) | |

Cheng Suk Yin Nov 15, 2014 09:08:12 HKT

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| When the program run, the output of is not displayed as expected, after checking with the code, a function is missing in class “**publicstatic**ArrayList<ArrayList<ArrayList<Timeslot>>>GeneratePermutations(ArrayList<ArrayList<ArrayList<Timeslot>>> list)”.  After adding the function “list.remove(0);” ,the timetable can generated successfully. |

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| Bug 00001 – Both tutorials and lectures displayed in incorrect weekdays | | | |
| **Status:** | RESOLVED FIXED | **Assigned To:** | Hui Kwun Tung |
| **Product:** | Timetable Scheduling System | **Reported:** | Oct 25, 2014 15:16:17 HKT |
| **Version:** | v0.3.0 | **Modified:** | Oct 30, 2014 10:55:32 HKT |
| **Platform:** | PC | **Target Milestone:** | v0.4 |
| **OS:** | Windows 7 |  |  |
| **Importance:** | Normal |  |  |

Hui Kwun Tung Oct 25, 2014 15:16:17 HKT

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| The lectures and tutorials should be displayed correctly in the timetable with the correlated weekdays. However, both lectures and tutorials are showed in incorrect day. Lectures or tutorials should not be showed in timetable if those days have no such sessions.  Expected result:  |-------------------------|  | Visualized timetable |  |------------|------------|------------|------------|------------|------------|------------|------------|  |Time |Monday |Tuesday |Wednesday |Thursday |Friday |Saturday |Sunday |  |------------|------------|------------|------------|------------|------------|------------|------------|  |0800-0850 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |0900-0950 |CS3332-T03 | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1000-1050 | |CS2010-C0A |CS2201-C0A | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1100-1150 |CS2201-T01 |CS2010-C0A |CS2201-C0A | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1200-1250 | | |CS2205-T01 | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1300-1350 |CS3332-C0A |CS2010-T0A | |CS4321-T02 | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1400-1450 |CS3332-C0A | |CS2205-C0A | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1500-1550 |CS3332-C0A | | |CS4321-C01 |CS2332-L0A | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1600-1650 |CS2112-C0A | | |CS4321-C01 |CS2332-L0A | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1700-1750 |CS2112-C0A | | | |CS2332-C0A | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1800-1850 |CS2112-T0A | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1900-1950 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |2000-2050 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |2100-2150 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |2200-2250 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  List of CRNs: [10005, 40010, 10001, 40013, 40014, 20006, 20008, 40015, 50002, 50001, 30014, 20011, 60002, 50005]  Actual result:  |-------------------------|  | Visualized timetable |  |------------|------------|------------|------------|------------|------------|------------|------------|  |Time |Monday |Tuesday |Wednesday |Thursday |Friday |Saturday |Sunday |  |------------|------------|------------|------------|------------|------------|------------|------------|  |0800-0850 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |0900-0950 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1000-1050 | |CS2112-T03 |CS2010-C0A |CS2201-C0A | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1100-1150 | |CS2201-T01 |CS2010-C0A |CS2201-C0A | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1200-1250 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1300-1350 | |CS3332-C0A |CS3332-T02 | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1400-1450 | |CS3332-C0A | |CS2205-C0A | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1500-1550 | |CS3332-C0A | |CS2205-T0A | |CS2332-L0A | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1600-1650 | |CS2112-C0A | |CS2205-T0A |CS2010-T02 |CS2332-L0A | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1700-1750 | |CS2112-C0A | | | |CS2332-C0A | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1800-1850 | | | |CS4321-T0A | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |1900-1950 | | | |CS4321-T0A | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |2000-2050 | | | |CS4321-C0A | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |2100-2150 | | | |CS4321-C0A | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  |2200-2250 | | | | | | | |  |------------|------------|------------|------------|------------|------------|------------|------------|  List of CRNs: [40018, 40010, 10001, 40013, 20006, 10004, 40015, 50001, 50003, 30013, 30012, 20009, 60002, 50005] |

Hui Kwun Tung Oct 30, 2014 10:55:32 HKT

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| This bug showed the correlated lectures and tutorials in wrong weekdays and it may cause the wrong searching result if those weekdays have no such lectures and tutorials. I try to check the input file and the output result still wrong. Therefore, I check the weekday.java to ensure the weekdays setting. It discovered that the weekdays enum setting is not match with our assumption. After I reset the weekdays number, the actual result displayed normally. |