**Report on**

**Local Search Offline**

**Course: CSE 318  
Course Title: Artificial Intelligence Sessional**

**Student Id: 1805115**

**Date of Submission: 20-01-2023**

**Data set for Exponential Penalty**:

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| Benchmark Data | Known Best Solution | | Scheme -1  Largest Degree + Kempe + Pairswap | | | |
| Timeslots | Penalty | | |
| Timeslots | Penalty | After Largest Degree | After Kempe | After Pairswap |
| CARF92 | 32 | 3.74 | 32 |  |  |  |
| CARS91 | 35 | 4.42 | 34 |  |  |  |
| KFU93 | 20 | 12.96 | 20 |  |  |  |
| TRE92 | 23 | 7.75 | 23 |  |  |  |
| YOR83 | 21 | 34.84 | 23 |  |  |  |

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| Benchmark Data | Known Best Solution | | Scheme -2  Saturation Degree + Kempe + Pairswap | | | |
| Timeslots | Penalty | | |
| Timeslots | Penalty | After Saturation Degree | After Kempe | After Pairswap |
| CARF92 | 32 | 3.74 | 30 |  |  |  |
| CARS91 | 35 | 4.42 | 31 |  |  |  |
| KFU93 | 20 | 12.96 | 19 |  |  |  |
| TRE92 | 23 | 7.75 | 23 |  |  |  |
| YOR83 | 21 | 34.84 | 20 |  |  |  |

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| Benchmark Data | Known Best Solution | | Scheme -3  Largest Enrollment + Kempe + Pairswap | | | |
| Timeslots | Penalty | | |
| Timeslots | Penalty | After Largest Enrollment | After Kempe | After Pairswap |
| CARF92 | 32 | 3.74 | 35 |  |  |  |
| CARS91 | 35 | 4.42 | 36 |  |  |  |
| KFU93 | 20 | 12.96 | 21 |  |  |  |
| TRE92 | 23 | 7.75 | 22 |  |  |  |
| YOR83 | 21 | 34.84 | 25 |  |  |  |

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| Benchmark Data | Known Best Solution | | Scheme -4  Random Ordering + Kempe + Pairswap | | | |
| Timeslots | Penalty | | |
| Timeslots | Penalty | After Random Ordering | After Kempe | After Pairswap |
| CARF92 | 32 | 3.74 | 44 |  |  |  |
| CARS91 | 35 | 4.42 | 50 |  |  |  |
| KFU93 | 20 | 12.96 | 26 |  |  |  |
| TRE92 | 23 | 7.75 | 28 |  |  |  |
| YOR83 | 21 | 34.84 | 26 |  |  |  |

**Data set for Linear Penalty**:

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| Benchmark Data | Known Best Solution | | Scheme -1  Largest Degree + Kempe + Pairswap | | | |
| Timeslots | Penalty | | |
| Timeslots | Penalty | After Largest Degree | After Kempe | After Pairswap |
| CARF92 | 32 | 3.74 | 32 |  |  |  |
| CARS91 | 35 | 4.42 | 34 |  |  |  |
| KFU93 | 20 | 12.96 | 20 |  |  |  |
| TRE92 | 23 | 7.75 | 23 |  |  |  |
| YOR83 | 21 | 34.84 | 23 |  |  |  |

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| Benchmark Data | Known Best Solution | | Scheme -2  Saturation Degree + Kempe + Pairswap | | | |
| Timeslots | Penalty | | |
| Timeslots | Penalty | After Saturation Degree | After Kempe | After Pairswap |
| CARF92 | 32 | 3.74 | 30 |  |  |  |
| CARS91 | 35 | 4.42 | 31 |  |  |  |
| KFU93 | 20 | 12.96 | 19 |  |  |  |
| TRE92 | 23 | 7.75 | 23 |  |  |  |
| YOR83 | 21 | 34.84 | 20 |  |  |  |

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| Benchmark Data | Known Best Solution | | Scheme -3  Largest Enrollment + Kempe + Pairswap | | | |
| Timeslots | Penalty | | |
| Timeslots | Penalty | After Largest Enrollment | After Kempe | After Pairswap |
| CARF92 | 32 | 3.74 | 35 |  |  |  |
| CARS91 | 35 | 4.42 | 36 |  |  |  |
| KFU93 | 20 | 12.96 | 21 |  |  |  |
| TRE92 | 23 | 7.75 | 22 |  |  |  |
| YOR83 | 21 | 34.84 | 25 |  |  |  |

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| Benchmark Data | Known Best Solution | | Scheme -4  Random Ordering + Kempe + Pairswap | | | |
| Timeslots | Penalty | | |
| Timeslots | Penalty | After Random Ordering | After Kempe | After Pairswap |
| CARF92 | 32 | 3.74 | 44 |  |  |  |
| CARS91 | 35 | 4.42 | 50 |  |  |  |
| KFU93 | 20 | 12.96 | 26 |  |  |  |
| TRE92 | 23 | 7.75 | 28 |  |  |  |
| YOR83 | 21 | 34.84 | 26 |  |  |  |