**Freelancer**

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|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SW(S)/SW(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | 0,943304 | **1** | 0,983243 | 0,932576 | 0,95187 | 0,834745 | 0,746395 | 0,941865 | 0,83263 | 0,812735 | 0,682487 | 0,781599 |
| **dUSM** | 0,956247 | 0,970362 | 0,963771 | 0,951255 | 0,91456 | 0,954942 | 0,950935 | 0,911031 | 0,906053 | 0,939273 | 0,950848 | 0,936867 |
| **dgreedy** | 0,9875 | **1** | **1** | 0,996479 | **1** | 0,979016 | 0,981421 | 0,993909 | 0,983611 | 0,978091 | 0,978552 | 0,983971 |
| **ROI** | 0,982143 | **1** | 0,997935 | 0,996479 | 0,999884 | 0,976222 | 0,975503 | 0,990216 | 0,977812 | 0,971571 | 0,978552 | 0,981923 |
| **Winner** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SC(S)/SC(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | 1,011443 | **1** | 1,006843 | 1,021212 | 1,018606 | 1,034047 | 1,038846 | 1,039055 | 1,073744 | 1,050799 | 1,044016 | 1,045723 |
| **dUSM** | 1,012852 | 1,042555542 | 1,02976 | 1,014792 | 1,048661 | 1,010073 | 1,006801 | 1,084165 | 1,043236 | 1,017654 | 1,007221 | 1,013155 |
| **dgreedy** | 1,001794 | **1** | **1** | 1,00088 | **1** | 1,003599 | 1,003 | 1,005129 | 1,007153 | 1,006015 | 1,002891 | 1,003269 |
| **ROI** | 1,003183 | **1** | 1,001338 | 1,00088 | 1,000157 | 1,004138 | 1,003979 | 1,007403 | 1,009833 | 1,008241 | 1,002891 | 1,003769 |
| **Winner** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst N column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | 0,714286 | **1** | 0,832432 | 0,78169 | 0,75510 | 0,70732 | 0,6129 | 0,818182 | 0,488584 | 0,76 | 0,4881 | 0,65405 |
| **dUSM** | 0,82143 | 0,92021277 | 0,93171 | 0,80282 | 0,91456 | 0,87578 | 0,85417 | 0,882352941 | 0,86842 | 0,9083 | 0,89362 | 0,87574 |
| **dgreedy** | 0,875 | **1** | **1** | 0,96479 | **1** | 0,8875 | 0,95327 | 0,97326 | 0,96347 | 0,95025 | 0,9111 | 0,9625 |
| **ROI** | 0,875 | **1** | 0,97935 | 0,96479 | 0,99884 | 0,8875 | 0,90909 | 0,95187 | 0,95033 | 0,95025 | 0,91111 | 0,9625 |
| **Winner** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** |

**=MIN(N2:N11)**

**=MAX(Z2:Z11)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst Ζ column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | 1,074074 | **1** | 1,068433 | 1,054577 | 1,055556 | 1,06051 | 1,06083 | 1,104762 | 1,2 | 1,07516 | 1,07683 | 1,08545 |
| **dUSM** | 1,04735 | 1,18817204 | 1,07621 | 1,0493 | 1,048661 | 1,02922 | 1,01837 | 1,137209302 | 1,06944 | 1,03431 | 1,02193 | 1,02672 |
| **dgreedy** | 1,01794 | **1** | **1** | 1,0088 | **1** | 1,0144 | 1,00852 | 1,02619 | 1,01429 | 1,01393 | 1,0108 | 1,00823 |
| **ROI** | 1,01794 | **1** | 1,01338 | 1,0088 | 1,00157 | 1,0144 | 1,01425 | 1,02314 | 1,0274 | 1,01797 | 1,01077 | 1,00871 |
| **Winner** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Average percentage of selected workers** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | **0,54** | 0,3 | 0,45 | 0,44 | 0,205 | 0,27 | 0,225 | 0,192 | 0,184 | 0,152 | 0,215 | 0,165 |
| **dUSM** | **0,62** | 0,32 | **0,51** | **0,55** | 0,25 | 0,435 | 0,48 | 0,264 | 0,328 | 0,324 | 0,49 | 0,3625 |
| **dgreedy** | **0,58** | 0,3 | 0,47 | **0,53** | 0,235 | 0,42 | 0,455 | 0,22 | 0,306 | 0,302 | 0,46 | 0,345 |
| **ROI** | **0,6** | 0,3 | 0,48 | **0,53** | 0,245 | 0,425 | 0,465 | 0,238 | 0,316 | 0,304 | 0,46 | 0,345 |
| **Winner** | **0,56** | 0,3 | 0,47 | **0,53** | 0,24 | 0,405 | 0,46 | 0,228 | 0,302 | 0,28 | 0,46 | 0,335 |

**Guru**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SW(S)/SW(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | 0,981882 | 0,951035 | 0,958088 | 0,956699 | 0,942734 | 0,954908 | 0,914274 | 0,919468 |
| **dUSM** | 0,957051 | 0,938909 | 0,983456 | 0,942846 | 0,983167 | 0,9443 | 0,943157 | 0,95239 |
| **dgreedy** | 0,99643 | 0,995685 | 0,993334 | 0,991174 | 0,998329 | 0,992765 | 0,99408 | 0,994266 |
| **ROI** | 0,998583 | 0,992305 | 0,990137 | 0,988121 | 0,994137 | 0,986876 | 0,990644 | 0,994168 |
| **Winner** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SC(S)/SC(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | 1,003724 | 1,017649 | 1,003943 | 1,01015 | 1,004603 | 1,008485 | 1,012795 | 1,017997 |
| **dUSM** | 1,008872 | 1,024079 | 1,002308 | 1,013154 | 1,001454 | 1,010791 | 1,008181 | 1,010797 |
| **dgreedy** | 1,000809 | 1,001392 | 1,000554 | 1,001959 | 1,000119 | 1,001302 | 1,000874 | 1,001298 |
| **ROI** | 1,000327 | 1,002668 | 1,001008 | 1,002719 | 1,000392 | 1,002328 | 1,001376 | 1,001333 |
| **Winner** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst N column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | 0,95808 | 0,89606 | 0,84076 | 0,91665 | 0,82448 | 0,87515 | 0,875903 | 0,88077 |
| **dUSM** | 0,89946 | 0,83353 | 0,94508 | 0,87846 | 0,96151 | 0,89463 | 0,84333 | 0,88651 |
| **dgreedy** | 0,9706817 | 0,9794 | 0,94432 | 0,97635 | 0,98329 | 0,97383 | 0,98541 | 0,9831 |
| **ROI** | 0,99362082 | 0,97692 | 0,94432 | 0,97635 | 0,9668 | 0,97383 | 0,98097 | 0,9831 |
| **Winner** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** |

**=MIN(N2:N11)**

**=MAX(Z2:Z11)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst Ζ column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | 1,00922 | 1,02885 | 1,01271 | 1,01909 | 1,0117 | 1,03006 | 1,023568 | 1,02936 |
| **dUSM** | 1,01864 | 1,04656 | 1,00548 | 1,03075 | 1,00403 | 1,02258 | 1,01957 | 1,02795 |
| **dgreedy** | 1,0069025 | 1,00564 | 1,00444 | 1,00598 | 1,00119 | 1,00441 | 1,0025 | 1,00404 |
| **ROI** | 1,00132894 | 1,00632 | 1,00444 | 1,00598 | 1,00167 | 1,00441 | 1,0032 | 1,00404 |
| **Winner** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Average percentage of selected workers** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | 0,325 | 0,212 | 0,365 | 0,254 | 0,385 | 0,322 | 0,306 | 0,228 |
| **dUSM** | 0,415 | 0,3 | 0,46 | 0,332 | 0,54 | 0,452 | 0,498 | 0,397 |
| **dgreedy** | 0,355 | 0,252 | 0,42 | 0,308 | 0,485 | 0,392 | 0,458 | 0,352 |
| **ROI** | 0,37 | 0,278 | 0,44 | 0,322 | 0,495 | 0,406 | 0,466 | 0,353 |
| **Winner** | 0,355 | 0,246 | 0,41 | 0,298 | 0,48 | 0,376 | 0,448 | 0,346 |

**Synthetic**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SW(S)/SW(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** |
| **CSG** | 0,842295 | 0,95962 | 0,9294466 | 0,93051 | 0,92833 | 0,96377 | 0,9755 | 0,97286 | 0,95743 | 0,957428 |
| **dUSM** | 0,96441 | 0,8635 | 0,9188 | 0,95804 | 0,85847 | 0,93464 | 0,93068 | 0,82416 | 0,85124 | 0,87694 |
| **dgreedy** | 0,99224 | 0,99801 | 0,98586 | 0,99309 | 0,98004 | 0,98973 | 0,99453 | 0,99011 | 0,98043 | 0,98573 |
| **ROI** | 0,99313 | 0,98628 | 0,98686 | 0,99217 | 0,97817 | 0,99076 | 0,99422 | 0,97946 | 0,99029 | 0,99005 |
| **Winner** | **1** | **1** | **1** | **1** | **0,99961** | **0,99949** | **0,99907** | **0,99902** | **0,99317** | **0,99605** |

**=AVERAGE(N2:N31)**

**=AVERAGE(Z2:Z31)**

**=MIN(N2:N31)**

**=MAX(Z2:Z31)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SC(S)/SC(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** |
| **CSG** | 1,076789 | 1,04223 | 1,0895335 | 1,09757 | 1,10177 | 1,09459 | 1,07994 | 1,124 | 1,21331 | 1,213315 |
| **dUSM** | 1,01589 | 1,05031 | 1,11395 | 1,08747 | 1,25261 | 1,26359 | 1,35401 | 1,88153 | 1,95588 | 2,23687 |
| **dgreedy** | 1,00284 | 1,00128 | 1,01979 | 1,00862 | 1,0269 | 1,03214 | 1,02072 | 1,05038 | 1,10492 | 1,1494 |
| **ROI** | 1,00337 | 1,01447 | 1,01945 | 1,01009 | 1,03905 | 1,03698 | 1,03398 | 1,0909 | 1,04861 | 1,07152 |
| **Winner** | **1** | **1** | **1** | **1** | **1,00062** | **1,00406** | **1,00595** | **1,00437** | **1,02679** | **1,02066** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst N column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** |
| **CSG** | 0 | 0,71985 | 0,7608241 | 0,78509 | 0,76295 | 0,80346 | 0,92425 | 0,93109 | 0,88087 | 0,880868 |
| **dUSM** | 0,77091 | 0,61122 | 0,64308 | 0,79778 | 0,6554 | 0,83327 | 0,81131 | 0,67362 | 0,72847 | 0,78796 |
| **dgreedy** | 0,85778 | 0,94236 | 0,84123 | 0,93547 | 0,86815 | 0,93297 | 0,95441 | 0,94794 | 0,90758 | 0,93841 |
| **ROI** | 0,85778 | 0,88726 | 0,84123 | 0,93547 | 0,90591 | 0,93297 | 0,95441 | 0,93932 | 0,94587 | 0,95743 |
| **Winner** | **1** | **1** | **1** | **1** | **0,98833** | **0,98822** | **0,9896** | **0,97681** | **0,9365** | **0,96377** |

**=MIN(N2:N31)**

**=MAX(Z2:Z31)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst Ζ column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** |
| **CSG** | 1,40076 | 1,43833 | 1,3311727 | 1,29939 | 1,3695 | 1,306 | 1,27023 | 1,28479 | 1,53156 | 1,531555 |
| **dUSM** | 1,13909 | 1,20692 | 1,55353 | 1,52494 | 1,65726 | 2,08464 | 2,42017 | 3,41017 | 3,2611 | 5,30774 |
| **dgreedy** | 1,05301 | 1,03831 | 1,28004 | 1,07163 | 1,17813 | 1,16065 | 1,19173 | 1,26952 | 1,44258 | 1,64215 |
| **ROI** | 1,05301 | 1,14194 | 1,28004 | 1,07163 | 1,38317 | 1,27238 | 1,1664 | 1,28772 | **1,19985** | 1,40894 |
| **Winner** | **1** | **1** | **1** | **1** | **1,01861** | **1,10359** | **1,13082** | **1,106** | 1,20074 | **1,12742** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Average percentage of selected workers** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** |
| **CSG** | 0,34 | 0,103333 | 0,243333 | 0,34 | 0,12 | 0,241667 | 0,265 | 0,077333 | 0,093333 | 0,109333 |
| **dUSM** | **0,553333** | 0,13 | 0,353333 | 0,496667 | 0,183333 | 0,35 | 0,373333 | 0,122 | 0,154667 | 0,177333 |
| **dgreedy** | **0,5** | 0,136667 | 0,323333 | 0,45 | 0,165 | 0,301667 | 0,318333 | 0,1 | 0,122667 | 0,130667 |
| **ROI** | **0,52** | 0,153333 | 0,33 | 0,456667 | 0,181667 | 0,31 | 0,333333 | 0,113333 | 0,135333 | 0,139333 |
| **Winner** | **0,52** | 0,133333 | 0,313333 | 0,446667 | 0,156667 | 0,288333 | 0,311667 | 0,098667 | 0,124667 | 0,130667 |

**k-Constrained**

**k=0.1\*workers or k=2 (if #workers=10 or less)**

**Freelancer**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SW(S)/SW(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | 0,9433 | 0,99136 | 0,9977 | 0,98145 | 0,97432 | 0,94271 | 0,9549 | 0,99096 | 0,96044 | 0,97197 | 0,94772 | 0,97639 |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | **1** | **1** | **1** | 0,99442 | **1** | 0,99326 | 0,98966 | 0,99218 | 0,98945 | 0,99908 | 0,97349 | 0,98676 |
| **ROI** | 0,82676 | 0,94838 | 0,89915 | 0,91296 | 0,92465 | 0,80962 | 0,84582 | 0,88157 | 0,85853 | 0,87224 | 0,92615 | 0,94899 |
| **Winner** | **1** | **1** | **1** | **1** | 0,99541 | **1** | **1** | **1** | 0,99081 | 0,9912 | **1** | 0,99872 |

**=AVERAGE(N2:N11)**

**=AVERAGE(Z2:Z11)**

**=MIN(N2:N11)**

**=MAX(Z2:Z11)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SC(S)/SC(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | 1,01144 | 1,00778 | 1,00058 | 1,00199 | 1,00367 | 1,00512 | 1,00283 | 1,00387 | 1,00864 | 1,00495 | 1,00346 | 1,00265 |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | 1 | 1 | 1,0006 | 1 | 1,00071 | 1,00066 | 1,00336 | 1,00217 | 1,00014 | 1,00209 | 1,00153 |
| **ROI** | 1,04672 | 1,04063 | 1,0304 | 1,01305 | 1,02158 | 1,01772 | 0,84582 | 1,06273 | 1,03421 | 1,02289 | 1,00457 | 1,00576 |
| **Winner** | 1 | 1 | 1 | 1 | 1,00171 | 1 | 1 | 1 | 1,00196 | 1,00139 | 1 | 1,00012 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst N column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | 0,71429 | 0,93506 | 0,97701 | 0,90654 | 0,82222 | 0,83929 | 0,88679 | 0,96784 | 0,87705 | 0,90164 | 0,86486 | 0,90909 |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | 1 | 1 | 0,97196 | 1 | 0,93258 | 0,89655 | 0,96784 | 0,94262 | 0,99083 | 0,86486 | 0,95455 |
| **ROI** | 0,66071 | 0,66504 | 0,62694 | 0,76471 | 0,66846 | 0,43939 | 0,65625 | 0,69247 | 0,68649 | 0,68293 | 0,80435 | 0,83529 |
| **Winner** | 1 | 1 | 1 | 1 | 0,95413 | 1 | 1 | 1 | 0,90811 | 0,912 | 1 | 0,98718 |

**=MIN(N2:N31)**

**=MAX(Z2:Z31)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst Ζ column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | 1,07407 | 1,04704 | 1,00581 | 1,00951 | 1,01653 | 1,01387 | 1,00862 | 1,01491 | 1,02283 | 1,01702 | 1,01332 | 1,00999 |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | 1 | 1 | 1,00314 | 1 | 1,00708 | 1,00659 | 1,01491 | 1,01065 | 1,00145 | 1,01332 | 1,00562 |
| **ROI** | 1,09782 | 1,26444 | 1,13296 | 1,03888 | 1,10943 | 1,04568 | 1,0222 | 1,15021 | 1,07708 | 1,05417 | 1,01332 | 1,01687 |
| **Winner** | 1 | 1 | 1 | 1 | 1,01712 | 1 | 1 | 1 | 1,01956 | 1,01385 | 1 | 1,00117 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Average percentage of selected workers** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | 0,36 | 0,2 | 0,2 | 0,2 | 0,09 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | 0,38 | 0.2 | 0.2 | 0,2 | 0,095 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| **ROI** | 0.38 | 0.2 | 0.2 | 0.2 | 0,095 | 0,1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| **Winner** | 0.38 | 0.2 | 0.2 | 0.2 | 0,095 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |

**k-Constrained**

**k=0.2\*workers or k=4 (if #workers=10 or less)**

**Freelancer**

**1ος, 2ος, 3ος, 4ος ,**5ος

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SW(S)/SW(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | **0,9433** | 1 | **0,99802** | **0,96193** | **0,96371** | **0,93117** | **0,92569** | **0,94888** | **0,8911** | **0,8645** | **0,86265** | **0,88433** |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | **1** | **1** | **1** | **0,99621** | **1** | **0,98759** | **0,99697** | **0,99413** | **0,98103** | **0,98657** | **0,98292** | **0,9867** |
| **ROI** | **0,98214** | 1 | **0,97339** | **0,96072** | **0,96961** | **0,8731** | **0,92743** | **0,93471** | **0,92994** | **0,93604** | **0,91476** | **0,97309** |
| **Winner** | **1** | **1** | **1** | **1** | **0,99565** | **1** | **1** | **0,99694** | 1 | 1 | **1** | **0,99565** |

**=AVERAGE(N2:N11)**

**=AVERAGE(Z2:Z11)**

**=MIN(N2:N11)**

**=MAX(Z2:Z11)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SC(S)/SC(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | **1,01144** | 1 | **1,00122** | **1,01013** | **1,00885** | **1,00976** | **1,00782** | **1,03038** | **1,04104** | **1,0324** | **1,01247** | **1,0198** |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | 1 | 1 | **1,00087** | 1 | **1,00228** | **1,00023** | **1,00414** | **1,00651** | **1,00304** | **1,00171** | **1,00253** |
| **ROI** | **1,00318** | 1 | **1,01507** | **1,00847** | **1,02324** | **1,01999** | **1,00802** | **1,05698** | **1,02797** | **1,01668** | **1,00798** | **1,00515** |
| **Winner** | 1 | 1 | 1 | 1 | **1,00175** | 1 | 1 | **1,00248** | 1 | 1 | 1 | **1,00077** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst N column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | **0,71429** | 1 | **0,98022** | **0,84091** | **0,7551** | **0,77632** | **0,84615** | **0,81818** | **0,56915** | **0,78621** | **0,62121** | **0,79825** |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | 1 | 1 | **0,96212** | 1 | **0,87586** | **0,9697** | **0,97326** | **0,89362** | **0,95833** | **0,86301** | **0,96503** |
| **ROI** | **0,875** | 1 | **0,83056** | **0,85306** | **0,82707** | **0,65** | **0,82828** | **0,77083** | **0,84286** | **0,8913** | **0,83544** | **0,91803** |
| **Winner** | 1 | 1 | 1 | 1 | **0,95652** | 1 | 1 | **0,96935** | 1 | 1 | 1 | **0,95652** |

**=MIN(N2:N31)**

**=MAX(Z2:Z31)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst Ζ column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | **1,07407** | 1 | **1,01223** | **1,03633** | **1,03125** | **1,02703** | **1,01655** | **1,0874** | **1,13706** | **1,0474** | **1,0332** | **1,02911** |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | 1 | 1 | **1,00865** | 1 | **1,02276** | **1,00228** | **1,01923** | **1,03384** | **1,00952** | **1,01316** | **1,00616** |
| **ROI** | **1,01794** | 1 | **1,09091** | **1,03197** | **1,13855** | **1,05765** | **1,01963** | **1,20671** | **1,06803** | **1,03212** | **1,01493** | **1,01814** |
| **Winner** | 1 | 1 | 1 | 1 | **1,01748** | 1 | 1 | **1,02477** | 1 | 1 | 1 | **1,00773** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Average percentage of selected workers** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** |
| **CSG** | **0,54** | 0,3 | 0,39 | 0,37 | 0,16 | **0,195** | 0,19 | **0,172** | **0,166** | 0,15 | 0,18 | 0,16 |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | 0,56 | 0,3 | 0,39 | 0,4 | **0,175** | 0,2 | 0,2 | **0,188** | 0,2 | 0,2 | 0,2 | 0,2 |
| **ROI** | 0,6 | 0,3 | 0,39 | 0,4 | 0,18 | 0,2 | 0,2 | 0,19 | 0,2 | 0,2 | 0,2 | 0,2 |
| **Winner** | 0,56 | 0,3 | 0,39 | 0,4 | **0,18** | 0,2 | 0,2 | **0,188** | **0,2** | 0,2 | 0,2 | 0,2 |

**k-Constrained**

**k=0.1\*workers**

**Guru**

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|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SW(S)/SW(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | **0,98805** | **0,97486** | **0,96359** | **0,94993** | **0,99159** | **0,97908** | **0,97463** | **0,98423** |
| **dUSM** |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | **0,99306** | **0,98648** | **0,96746** | **0,99661** | **0,98837** | **0,99** | **0,99523** |
| **ROI** | **0,82884** | **0,79935** | **0,8092** | **0,87952** | **0,8345** | **0,87067** | **0,90147** | **0,92305** |
| **Winner** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**=AVERAGE(N2:N11)**

**=AVERAGE(Z2:Z11)**

**=MIN(N2:N11)**

**=MAX(Z2:Z11)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SC(S)/SC(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | **1,0013** | **1,00574** | **1,00166** | **1,00666** | **1,00032** | **1,00232** | **1,00217** | **1,00237** |
| **dUSM** |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | **1,00185** | **1,00057** | **1,00387** | **1,00014** | **1,00113** | **1,00084** | **1,00077** |
| **ROI** | **1,01874** | **1,04859** | **1,01162** | **1,01705** | **1,00711** | **1,01458** | **1,00866** | **1,01164** |
| **Winner** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst N column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | **0,92565** | **0,9248** | **0,77459** | **0,86258** | **0,9401** | **0,94185** | **0,91503** | **0,95302** |
| **dUSM** |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | **0,94532** | **0,86475** | **0,8778** | **0,96615** | **0,94185** | **0,93967** | **0,97517** |
| **ROI** | **0,47644** | **0,61189** | **0,45151** | **0,76951** | **0,62372** | **0,65461** | **0,77445** | **0,81805** |
| **Winner** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**=MIN(N2:N31)**

**=MAX(Z2:Z31)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst Ζ column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | **1,00703** | **1,01719** | **1,00943** | **1,0136** | **1,00255** | **1,00728** | **1,00758** | **1,007** |
| **dUSM** |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | **1,01529** | **1,0056** | **1,0136** | **1,00144** | **1,00557** | **1,00538** | **1,00402** |
| **ROI** | **1,07384** | **1,10561** | **1,04231** | **1,04135** | **1,01664** | **1,0481** | **1,0187** | **1,02777** |
| **Winner** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Average percentage of selected workers** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | **0,095** | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| **dUSM** |  |  |  |  |  |  |  |  |
| **dgreedy** | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| **ROI** | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| **Winner** | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |

**k-Constrained**

**k=0.2\*workers**

**Guru**

**1ος, 2ος, 3ος, 4ος ,**5ος

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SW(S)/SW(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | **0,98169** | **0,96364** | **0,96335** | **0,95949** | **0,99003** | **0,97198** | **0,97679** | **0,96858** |
| **dUSM** |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | **0,99068** | **0,99653** | **0,97899** | 1 | **0,99296** | **0,99844** | **0,9959** |
| **ROI** | **0,88089** | **0,90559** | **0,8833** | **0,92074** | **0,92496** | **0,89385** | **0,93543** | **0,96789** |
| **Winner** | 1 | 1 | 1 | 1 | **0,99985** | 1 | 1 | **0,99709** |

**=AVERAGE(N2:N11)**

**=AVERAGE(Z2:Z11)**

**=MIN(N2:N11)**

**=MAX(Z2:Z11)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SC(S)/SC(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | **1,00235** | **1,01118** | **1,00284** | **1,00775** | **1,00051** | **1,00385** | **1,00291** | **1,00617** |
| **dUSM** |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | **1,00349** | **1,00028** | **1,00377** | 1 | **1,00107** | **1,0002** | **1,00083** |
| **ROI** | **1,02181** | **1,03782** | **1,01084** | **1,01581** | **1,00489** | **1,01738** | **1,00798** | **1,00635** |
| **Winner** | 1 | 1 | 1 | 1 | **1,00001** | 1 | 1 | **1,00059** |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst N column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | **0,90836** | **0,89606** | **0,86065** | **0,88342** | **0,91617** | **0,92148** | **0,93645** | **0,93107** |
| **dUSM** |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | **0,95403** | **0,9653** | **0,91349** | 1 | **0,96337** | **0,99039** | **0,98146** |
| **ROI** | **0,56081** | **0,83018** | **0,74858** | **0,8102** | **0,86826** | **0,74756** | **0,86364** | **0,93656** |
| **Winner** | 1 | 1 | 1 | 1 | **0,99854** | 1 | 1 | **0,97094** |

**=MIN(N2:N31)**

**=MAX(Z2:Z31)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst Ζ column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | **1,01019** | **1,02217** | **1,01124** | **1,01811** | **1,00391** | **1,01136** | **1,00887** | **1,01184** |
| **dUSM** |  |  |  |  |  |  |  |  |
| **dgreedy** | 1 | **1,02096** | **1,0028** | **1,01344** | 1 | **1,00591** | **1,00128** | **1,00375** |
| **ROI** | **1,09778** | **1,07745** | **1,02329** | **1,04213** | **1,00962** | **1,04826** | **1,01819** | **1,013** |
| **Winner** | 1 | 1 | 1 | 1 | **1,00011** | 1 | 1 | **1,00587** |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Average percentage of selected workers** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** |
| **CSG** | **0,185** | 0,184 | 0,2 | 0,186 | 0,2 | 0,2 | 0,2 | 0,192 |
| **dUSM** |  |  |  |  |  |  |  |  |
| **dgreedy** | 0,19 | 0,196 | 0,2 | 0,198 | 0,2 | 0,2 | 0,2 | 0,2 |
| **ROI** | 0,19 | 0,198 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 |
| **Winner** | 0,19 | 0,196 | 0,2 | 0,198 | 0,2 | 0,2 | 0,2 | 0,2 |

**k-Constrained**

**k=0.1\*workers or k=2 (if #workers=10 or less)**

**Synthetic**

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|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SW(S)/SW(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** |
| **CSG** | **0,91151** | **0,96404** | **0,96367** | **0,97862** | **0,9657** | **0,97572** | **0,98634** | **0,97511** | **0,96738** | **0,97912** |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | **0,96911** | 1 | **0,97276** | **0,99159** | **0,98022** | **0,98599** | **0,9926** | **0,98856** | **0,98114** | **0,98601** |
| **ROI** | **0,95487** | **0,95577** | **0,92629** | **0,90959** | **0,88654** | **0,86078** | **0,86094** | **0,9564** | **0,9549** | **0,93414** |
| **Winner** | 1 | 1 | **0,99442** | 1 | **0,98287** | **0,99665** | **0,99225** | **0,99751** | **0,967** | **0,95939** |

**=AVERAGE(N2:N31)**

**=AVERAGE(Z2:Z31)**

**=MIN(N2:N31)**

**=MAX(Z2:Z31)**

**=AVERAGE(J2:J31)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **average SC(S)/SC(OPT)\ algorithm** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** |
| **CSG** | **1,04018** | **1,03353** | **1,04418** | **1,01422** | **1,04513** | **1,0203** | **1,01211** | **1,11276** | **1,15368** | **1,16962** |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | **1,01082** | 1 | **1,03763** | **1,00623** | **1,02603** | **1,0124** | **1,00738** | **1,05423** | **1,09565** | **1,14492** |
| **ROI** | **1,02735** | **1,0456** | **1,07918** | **1,08478** | **1,16041** | **1,13169** | **1,12128** | **1,21719** | **1,27231** | **1,7054** |
| **Winner** | **1** | **1** | **1,00336** | **1** | **1,01561** | **1,00376** | **1,00653** | **1,0146** | **1,18803** | **1,34877** |

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|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst N column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** |
| **CSG** | **0,620755** | **0,79853** | **0,78265** | **0,8107** | **0,79744** | **0,82005** | **0,90948** | **0,93109** | **0,88527** | **0,92205** |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | **0,54682** | 1 | **0,78265** | **0,85099** | **0,89937** | **0,82052** | **0,94088** | **0,95628** | **0,91509** | **0,95385** |
| **ROI** | **0,64502** | **0,68579** | **0,60532** | **0,69804** | **0,52001** | **0,51409** | **0,57122** | **0,73836** | **0,87** | **0,79988** |
| **Winner** | **1** | **1** | **0,83252** | **1** | **0,68618** | **0,94651** | **0,76764** | **0,9455** | **0,81593** | **0,78718** |

**=MIN(N2:N31)**

**=MAX(Z2:Z31)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Worst Ζ column** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** |
| **CSG** | **1,160584** | **1,19608** | **1,33117** | **1,11381** | **1,3695** | **1,15465** | **1,10777** | **1,28241** | **1,4365** | **1,71918** |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | **1,18162** | 1 | **1,33117** | **1,11176** | **1,18357** | **1,14468** | **1,07533** | **1,26036** | **1,32213** | **1,71918** |
| **ROI** | **1,22818** | **1,4241** | **1,40844** | **1,3923** | **2,03586** | **1,54879** | **1,4238** | **2,7707** | **2,25204** | **4,77035** |
| **Winner** | **1** | **1** | **1,10065** | **1** | **1,27292** | **1,0595** | **1,19603** | **1,36883** | **2,47759** | **3,11138** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Average percentage of selected workers** | **dataset\_01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** |
| **CSG** | **0,32667** | **0,10333** | **0,19667** | 0,2 | **0,09833** | 0,1 | 0,1 | **0,07733** | **0,08933** | **0,098** |
| **dUSM** |  |  |  |  |  |  |  |  |  |  |
| **dgreedy** | **0,37333** | 0,122581 | **0,19667** | 0,2 | 0,1 | 0,1 | **0,1** | **0,08933** | **0,098** | 0,1 |
| **ROI** | **0,38667** | **0,12667** | **0,19667** | 0,2 | **0,1** | 0,1 | 0,1 | **0,09667** | 0,1 | 0,1 |
| **Winner** | 0,393333 | **0,12667** | **0,19667** | 0,2 | 0,1 | 0,1 | 0,1 | **0,09133** | 0,1 | 0,1 |