Final Exp Data 20 trials

1. **webproject01** -

- fitness value: data transferred + the number of changes + page load time

-Random generation data:

data transferred:

[4327222, 4525614, 4632993, 5158864, 4982669,

4942936, 4280910, 5158780, 5159145, 4958131,

4320681, 5158854, 4590626, 4280906, 5084307,

4942842, 4320765, 5158798, 4982597, 4190500]

page load time:

[3633, 3736, 3906, 3626, 3670,

3601, 3634, 3731, 3648, 3661,

3622, 3619, 3627, 3612, 3639,

3686, 3643, 3621, 5428, 3587]

change num:

[14, 19, 21, 11, 19,

20, 18, 2, 20, 22,

17, 2, 22, 11, 15,

14, 18, 3, 19, 19]

change actions:

[0, 1, 1, 1, 0, 1], [1, 0, 1, 0, 1, 1], [1, 1, 1, 0, 1, 1], [1, 0, 0, 0, 0, 1], [0, 1, 0, 1, 0, 1],

[0, 1, 0, 1, 0, 1], [0, 1, 0, 1, 0, 1], [0, 1, 0, 1, 0, 0], [0, 1, 0, 1, 0, 1], [0, 1, 0, 1, 0, 1],

[1, 1, 0, 1, 1, 0], [0, 1, 0, 1, 0, 0], [0, 1, 1, 1, 0, 1], [0, 1, 1, 1, 0, 1], [0, 1, 1, 1, 0, 1],

[0, 1, 1, 1, 0, 1], [0, 1, 1, 1, 0, 1], [0, 1, 1, 1, 0, 1], [1, 1, 1, 1, 0, 1], [1, 1, 1, 1, 0, 1]

-Tool:20 trials

data transferred:

[4236118, 4224821, 4004974, 4210239, 4069745, 4030389, 4150666, 4231664, 4010652, 4214627, 4087220, 4059436, 4001561, 4133773, 4206617, 4088875, 4037477, 4102863, 4065976, 4014756]

num change:

[11, 18, 19, 12, 16,

11, 17, 18, 12, 18,

18, 16, 15, 17, 12,

19, 17, 16, 18, 14]

page load time:

[3541, 3404, 3544, 3510, 3463,

3486, 3531, 3570, 3488, 3587,

3392, 3521, 3633, 3578, 3377,

3631, 3489, 3378, 3542, 3598]

change actions:

[0, 1, 1, 1, 1, 1], [1, 1, 1, 0, 1, 1], [1, 1, 1, 0, 1, 1], [1, 0, 0, 0, 1, 1], [0, 0, 0, 1, 1, 1],

[0, 1, 0, 1, 1, 1], [0, 0, 0, 1, 1, 1], [0, 1, 0, 1, 1, 0], [0, 1, 1, 1, 1, 1], [0, 1, 1, 1, 1, 1],

[1, 0, 0, 1, 1, 1], [0, 1, 1, 1, 1, 1], [0, 1, 1, 0, 1, 1], [0, 1, 1, 1, 0, 1], [0, 1, 1, 1, 0, 1],

[0, 1, 1, 1, 1, 1], [0, 1, 0, 1, 0, 1], [0, 1, 1, 1, 1, 1], [1, 1, 1, 1, 1, 1], [0, 1, 1, 1, 1, 1]

- fitness value: data transferred + the number of changes + RAM

data transferred:

[5084514, 5158773, 4407103, 4320734, 5158769,

4852303, 5158928, 5068968, 5158943, 5084317,

4942789, 5158789, 4958017, 5069048, 5158770,

4083929, 4083930, 4190467, 4982596, 5158769]

num change:

[14, 2, 13, 20, 3,

15, 1, 15, 2, 15,

18, 2, 15, 18, 20,

21, 22, 17, 16, 1]

RAM:

[260964.0, 266192.0, 263348.0, 270164.0, 273588.0,

260952.0, 282064.0, 273200.0, 274096.0, 272040.0,

280336.0, 274564.0, 260584.0, 307984.0, 273636.0,

278872.0, 265600.0, 277992.0, 259476.0, 274780.0]

change actions:

[0, 1, 1, 1, 0, 1], [0, 1, 1, 0, 0, 0], [1, 0, 1, 0, 1, 1], [1, 0, 0, 0, 0, 1], [1, 1, 0, 1, 0, 0],

[0, 1, 1, 1, 1, 1], [0, 0, 0, 1, 0, 0], [0, 1, 0, 1, 1, 0], [0, 1, 1, 0, 0, 0], [0, 1, 0, 1, 1, 1],

[1, 1, 0, 1, 1, 1], [0, 1, 0, 1, 0, 0], [0, 1, 1, 0, 1, 1], [0, 1, 1, 0, 0, 1], [0, 1, 1, 1, 0, 1],

[0, 1, 1, 1, 1, 0], [0, 1, 0, 1, 1, 1], [0, 1, 1, 1, 1, 1], [1, 1, 1, 1, 1, 1], [0, 0, 0, 1, 0, 0]

Tool:

data transferred:

[4076323, 4198391, 4283791, 4288731, 4153329,

4289921, 4144312, 4071827, 4189279, 4097783,

4455293, 4183912, 4453134, 4092483, 4132883,

4076423, 4179533, 4194412, 4583772, 4156729]

num change:

[14, 16, 13, 20, 18,

15, 19, 15, 16, 15,

18, 18, 15, 18, 20,

21, 22, 17, 16, 19]

RAM:

[260887.0, 263642.0, 261132.0, 260889.0, 263513.0,

270034.0, 263112.0, 2647912.0, 263046.0, 270220.0,

258325.0, 264552.0, 260892.0, 259832.0, 262442.0,

271152.0, 262344.0, 264423.0, 255312.0, 264523.0]

change actions:

[0, 1, 1, 0, 1, 1], [0, 1, 1, 0, 1, 0], [0, 0, 1, 0, 1, 1], [1, 0, 0, 0, 1, 1], [1, 1, 0, 1, 1, 1],

[0, 1, 0, 0, 1, 1], [0, 0, 0, 1, 0, 1], [0, 1, 0, 1, 1, 1], [0, 1, 1, 0, 1, 1], [0, 1, 0, 0, 1, 1],

[1, 1, 0, 0, 1, 1], [0, 1, 0, 0, 1, 0], [0, 1, 0, 0, 1, 1], [0, 1, 0, 1, 1, 1], [0, 1, 1, 0, 0, 1],

[0, 1, 1, 0, 1, 0], [0, 1, 1, 1, 1, 1], [0, 1, 1, 1, 0, 1], [0, 1, 1, 1, 1, 1], [0, 0, 0, 1, 1, 0]

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1. **WebProject 02**

- fitness value: data transferred + the number of changes + page load time

-Random generation data:

data transferred:

[1598602, 1781976, 1643464, 3021120, 3021120,

1899164, 3021120, 1897169, 2587184, 1773806,

2591627, 2374109, 2689749, 1519477, 2759487,

1711473, 1331254, 3021120, 2660967, 1817982]

num change:

[19, 19, 26, 2, 3,

23, 3, 16, 20, 18,

22, 21, 21, 21, 22,

18, 25, 3, 21, 16]

page load time:

[2006, 2001, 1999, 2002, 2000,

2000, 2702, 2000, 1997, 1835,

1999, 1826, 1999, 1995, 2016,

2003, 1835, 1999, 1997, 1836]

change actions:

[0, 1, 1, 1, 0, 1], [1, 0, 1, 0, 1, 1], [1, 1, 1, 0, 1, 1], [1, 0, 0, 0, 0, 1], [0, 1, 0, 1, 0, 1],

[1, 0, 1, 1, 1, 0], [1, 0, 1, 1, 1, 0], [0, 1, 1, 0, 0, 0], [1, 1, 0, 1, 1, 1], [1, 1, 1, 1, 1, 1],

[1, 1, 0, 1, 1, 0], [0, 1, 0, 1, 0, 0], [0, 1, 1, 1, 0, 1], [0, 1, 1, 1, 0, 1], [0, 1, 1, 0, 0, 1],

[0, 1, 1, 0, 0, 1], [0, 0, 0, 0, 0, 1], [0, 0, 0, 0, 0, 1], [0, 0, 0, 0, 0, 1], [0, 0, 1, 0, 1, 0]

-Tool:

data transferred:

[1482581, 1589323, 1594123, 1475621, 1362784,

1627226, 1595231, 1472319, 1398239, 1523242,

1377323, 1487823, 1458512, 1499812, 1478823,

1521288, 1464879, 1387639, 1466528, 1379881]

page load time:

[2001, 1899, 1934, 1893, 1832,

1998, 1853, 1897, 1822, 1873,

1823, 1894, 1853, 1842, 1874,

1839, 1904, 1902, 1897, 1823]

num change:

[18, 20, 23, 23, 23,

23, 22, 20, 21, 19,

21, 22, 22, 23, 22,

19, 22, 23, 21, 19]

change actions:

[0, 1, 0, 1, 1, 1], [0, 0, 1, 0, 1, 1], [1, 0, 1, 0, 1, 1], [1, 0, 0, 0, 1, 1], [0, 1, 0, 1, 1, 1],

[1, 1, 1, 1, 1, 0], [0, 0, 1, 1, 1, 1], [0, 1, 1, 0, 1, 1], [1, 1, 0, 1, 1, 0], [1, 0, 0, 1, 1, 1],

[1, 1, 0, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 1, 1, 0, 1], [0, 1, 0, 1, 1, 0], [0, 1, 1, 0, 1, 1],

[0, 1, 1, 1, 0, 1], [0, 1, 1, 0, 0, 1], [0, 0, 1, 0, 1, 1], [0, 0, 0, 0, 1, 1], [0, 1, 1, 0, 1, 1]

- fitness value: data transferred + the number of changes + RAM

-Random generation data:

data transferred:

[3021120, 1498720, 1811930, 1632630, 1690669,

2655777, 2779369, 3021120, 3021120, 2644071,

3021120, 1561319, 3021120, 2565704, 1905559,

1701823, 1572751, 1382585, 1358585, 2429945]

ram:

[172620.0, 172676.0, 164088.0, 171316.0, 170304.0,

172272.0, 172868.0, 171640.0, 170864.0, 169484.0,

170320.0, 168928.0, 171080.0, 169272.0, 169356.0,

171924.0, 170056.0, 170208.0, 173032.0, 173552.0]

change number:

[0, 18, 12, 19, 19,

19, 20, 2, 4, 16,

2, 21, 2, 14, 16,

19, 12, 19, 22, 23]

change actions:

[0, 0, 0, 0, 0, 0], [0, 1, 0, 0, 1, 1], [0, 1, 0, 0, 1, 1], [1, 0, 0, 0, 1, 1], [1, 0, 0, 0, 1, 1],

[1, 1, 0, 1, 1, 0], [1, 1, 0, 1, 0, 1], [1, 1, 0, 1, 0, 1], [1, 1, 1, 1, 0, 0], [1, 0, 1, 0, 1, 0],

[1, 0, 0, 1, 0, 0], [1, 1, 1, 0, 0, 1], [0, 0, 1, 1, 0, 0], [1, 0, 0, 0, 1, 0], [0, 1, 1, 0, 1, 0],

[0, 1, 1, 0, 1, 0], [0, 1, 1, 0, 1, 0], [1, 0, 1, 0, 1, 1], [1, 0, 0, 0, 1, 1], [0, 0, 1, 0, 0, 1]

* Tool

data transferred:

[1463283, 1492839, 1398923, 1499323, 1397478,

1403829, 1398877, 1367462, 1424421, 1398593,

1692834, 1398882, 1488219, 1378758, 1402384,

1573929, 1403881, 1398492, 1523088, 1403849]

ram:

[170029.0, 171293.0, 170892.0, 171421.0, 168921.0,

170323.0, 168343.0, 170075.0, 170478.0, 168343.0,

169204.0, 169332.0, 168967.0, 168492.0, 169323.0,

168332.0, 170288.0, 169882.0, 168897.0, 169562.0]

[20, 19, 19, 20, 21,

19, 20, 20, 18, 19,

21, 21, 21, 19, 19,

20, 19, 19, 22, 22]

change actions:

[0, 0, 1, 0, 1, 1], [0, 1, 1, 0, 1, 1], [0, 1, 0, 1, 0, 1], [0, 1, 0, 1, 1, 1], [1, 0, 0, 1, 1, 1],

[0, 1, 0, 0, 1, 0], [1, 1, 0, 1, 1, 1], [1, 0, 0, 1, 1, 1], [1, 1, 1, 1, 1, 1], [0, 0, 1, 0, 1, 1],

[0, 0, 1, 1, 1, 1], [1, 1, 1, 1, 1, 0], [0, 1, 1, 1, 0, 1], [1, 0, 0, 0, 1, 1], [0, 1, 0, 0, 1, 0],

[0, 1, 0, 0, 1, 1], [0, 0, 1, 0, 1, 1], [0, 0, 1, 1, 1, 1], [1, 0, 1, 0, 0, 1], [0, 0, 1, 1, 1, 1]

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1. **WebProject 03**

- fitness value: data transferred + the number of changes + page load time

- Random generation data:

data transferred:

[1906767, 981514, 1906703, 1906708, 1831917,

1906766, 1906747, 1874809, 1804692, 1875137,

1813218, 1865036, 806618, 835753, 1831766,

1906749, 908251, 1865004, 1819908, 886285]

page load time:

[1871, 1876, 1869, 1857, 1871,

1866, 1866, 1863, 1873, 1872,

1873, 1903, 2152, 1869, 1859,

1865, 1882, 1871, 1857, 1869]

change num:

[2, 9, 1, 1, 14,

2, 2, 12, 15, 11,

18, 14, 17, 16, 13,

2, 18, 14, 16, 16]

change actions:

[0, 0, 1, 1, 0, 0], [0, 0, 0, 1, 1, 1], [0, 0, 0, 1, 0, 0], [0, 0, 0, 1, 0, 0], [1, 0, 1, 0, 0, 1],

[0, 0, 1, 1, 0, 0], [1, 0, 1, 0, 0, 0], [0, 0, 0, 1, 1, 0], [1, 0, 1, 1, 1, 0], [0, 1, 0, 1, 1, 0],

[1, 0, 1, 0, 1, 1], [1, 1, 1, 0, 1, 0], [0, 1, 0, 1, 0, 1], [0, 1, 1, 0, 1, 1], [1, 1, 0, 0, 0, 1],

[1, 0, 1, 0, 0, 0], [1, 1, 1, 1, 1, 1], [0, 0, 0, 1, 1, 0], [0, 0, 1, 1, 1, 0], [0, 1, 0, 0, 0, 1]

-Tool:

data transferred:

[983721, 897742, 902732, 993823, 883277,

976478, 980885, 889376, 923928, 964899,

956332, 947768, 905648, 896745, 914668,

932544, 897765, 896786, 946446, 976587]

page load time:

[1873, 1798, 1832, 1875, 1834,

1836, 1876, 1836, 1857, 1865,

1873, 1869, 1793, 1838, 1821,

1824, 1827, 1834, 1873, 1829]

change num:

[16, 17, 16, 16, 18,

16, 16, 16, 17, 16,

16, 17, 16, 17, 17,

17, 17, 16, 17, 17]

change actions:

[0, 0, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 1, 0, 1, 0, 1], [1, 0, 0, 0, 1, 1],

[0, 0, 1, 0, 1, 1], [0, 0, 1, 0, 1, 1], [0, 1, 0, 1, 1, 0], [1, 1, 1, 1, 1, 0], [0, 1, 1, 1, 1, 1],

[1, 0, 0, 0, 1, 1], [1, 0, 1, 0, 1, 1], [0, 1, 0, 1, 1, 1], [0, 1, 1, 1, 1, 1], [1, 0, 0, 0, 1, 1],

[1, 0, 1, 0, 1, 1], [1, 0, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1]

- fitness value: data transferred + the number of changes + RAM

data transferred:

[1838881, 924796, 1906737, 1906768, 859917,

1906751, 1906767, 811521, 1087636, 1887177,

930620, 1045763, 830774, 1906760, 1045813,

871233, 1055690, 1800020, 1065652, 1906884]

ram:

[168224.0, 166448.0, 141716.0, 146084.0, 164616.0,

144076.0, 145548.0, 165124.0, 145180.0, 168720.0,

170240.0, 172308.0, 139008.0, 139248.0, 142236.0,

171688.0, 143748.0, 171608.0, 142748.0, 145652.0]

change num:

[15, 15, 2, 1, 17,

2, 1, 19, 8, 12,

13, 10, 15, 2, 13,

16, 14, 9, 13, 9]

change actions:

[1, 1, 0, 1, 0, 1], [1, 1, 1, 1, 0, 1], [1, 1, 0, 0, 0, 0], [0, 0, 1, 0, 0, 0], [1, 0, 1, 0, 1, 1],

[1, 0, 1, 0, 0, 0], [0, 0, 1, 0, 0, 0], [0, 1, 1, 1, 1, 1], [0, 1, 1, 1, 1, 1], [0, 1, 1, 1, 1, 1],

[0, 1, 1, 0, 1, 1], [0, 1, 1, 0, 1, 1], [0, 1, 0, 0, 0, 1], [1, 0, 1, 0, 0, 0], [1, 0, 0, 0, 1, 0],

[1, 1, 1, 0, 0, 1], [0, 1, 1, 1, 1, 0], [0, 1, 0, 1, 0, 1], [0, 1, 0, 1, 0, 1], [0, 1, 0, 1, 0, 1]

-Tool:

data transferred:

[899676, 885762, 903672, 834635, 828687,

865854, 897548, 862548, 823234, 876778,

896776, 903253, 867978, 914657, 896986,

894566, 865389, 853357, 867687, 894434]

ram:

[167877.0, 139809.0, 165766.0, 176476.0, 154232.0,

146558.0, 165776.0, 184453.0, 145334.0, 165447.0,

176874.0, 156866.0, 176863.0, 136659.0, 164389.0,

167658.0, 157346.0, 177869.0, 164579.0, 134667.0]

change num:

[16, 16, 17, 15, 16,

16, 17, 16, 15, 15,

16, 16, 17, 18, 16,

16, 16, 17, 16, 15]

change actions:

[1, 0, 0, 1, 1, 1], [1, 0, 1, 1, 1, 1], [1, 1, 0, 0, 1, 1], [0, 0, 1, 1, 0, 1], [0, 0, 1, 1, 1, 1],

[0, 0, 1, 0, 1, 1], [0, 0, 0, 0, 1, 1], [0, 1, 0, 1, 1, 1], [0, 1, 1, 1, 0, 1], [0, 1, 1, 0, 1, 1],

[0, 1, 1, 1, 1, 1], [0, 0, 1, 0, 1, 1], [0, 1, 0, 1, 0, 1], [1, 0, 1, 0, 1, 1], [1, 0, 1, 0, 1, 1],

[1, 0, 1, 0, 1, 1], [0, 1, 1, 0, 1, 0], [0, 1, 0, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 1, 1, 1, 1, 1]

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1. **WebProject 04**

- fitness value: data transferred + the number of changes + page load time

- Random generation data:

[416531, 286866, 564321, 532711, 551033,

435510, 565886, 434608, 574751, 574751,

558310, 538783, 454904, 506283, 564316,

455027, 564704, 454904, 462411, 398344]

-time:

[1855, 1872, 2474, 2478, 2488,

2474, 2488, 1877, 2471, 2474,

2476, 2472, 1877, 2505, 2523,

1873, 2487, 1870, 2474, 1876]

change num:

[11, 14, 1, 14, 12,

11, 10, 10, 2, 2,

12, 10, 1, 8, 2,

4, 9, 1, 9, 10]

change actions:

[1, 1, 0, 1, 1, 0], [0, 1, 1, 1, 1, 1], [0, 0, 1, 0, 0, 0], [0, 1, 1, 0, 1, 0], [1, 1, 1, 0, 0, 1],

[0, 1, 1, 0, 0, 1], [0, 1, 0, 0, 1, 0], [1, 0, 0, 1, 1, 1], [1, 1, 0, 0, 0, 0], [1, 1, 0, 0, 0, 0],

[1, 1, 1, 0, 1, 0], [0, 0, 0, 0, 1, 1], [0, 0, 0, 1, 0, 0], [0, 0, 0, 0, 1, 1], [1, 0, 1, 0, 0, 0],

[1, 1, 1, 1, 0, 0], [1, 1, 1, 0, 1, 0], [1, 1, 1, 0, 1, 0], [0, 1, 1, 0, 1, 1], [0, 0, 1, 1, 0, 1]

-Tool:

transferred data:

[420908, 436578, 387883, 396544, 415764,

406765, 419287, 378971, 388981, 402898,

416747, 427543, 421480, 418633, 412215,

407864, 415565, 427421, 413768, 436765]

time:

[1897, 1865, 1835, 1867, 1898,

1893, 1825, 1857, 1849, 1873,

2281, 1869, 1873, 2083, 1932,

1832, 1877, 1865, 2210, 1879]

change num:

[13, 14, 12, 13, 12,

12, 11, 13, 12, 12,

12, 11, 13, 13, 12,

14, 12, 13, 13, 14]

change actions:

[1, 0, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 0, 1, 1], [1, 1, 0, 0, 1, 1],

[0, 1, 0, 0, 1, 1], [1, 0, 0, 1, 1, 1], [1, 0, 0, 1, 1, 1], [1, 1, 0, 1, 1, 1], [0, 1, 0, 1, 1, 1],

[0, 1, 1, 0, 1, 1], [0, 0, 1, 0, 1, 1], [0, 0, 1, 1, 0, 1], [0, 1, 0, 0, 1, 1], [1, 0, 1, 0, 1, 0],

[1, 0, 0, 0, 1, 1], [1, 0, 1, 0, 1, 1], [1, 1, 0, 0, 1, 1], [0, 1, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1]

- fitness value: data transferred + the number of changes + RAM

- Random generation data:

data transferred:

[428725, 454898, 564315, 398373, 434763,

455031, 455031, 455031, 376046, 455026,

525849, 343296, 416664, 454904, 425519,

574756, 455027, 342664, 393835, 425000]

ram:

[428725, 454898, 564315, 398373, 434763,

455031, 455031, 455031, 376046, 455026,

525849, 343296, 416664, 454904, 425519,

574756, 455027, 342664, 393835, 425000]

change num:

[11, 2, 2, 11, 15,

3, 3, 2, 8, 4,

8, 11, 11, 14, 16,

1, 3, 11, 12, 12]

change actions:

[0, 0, 1, 0, 0, 1], [0, 0, 1, 0, 0, 1], [1, 0, 1, 0, 0, 0], [1, 0, 1, 0, 0, 0], [1, 1, 1, 1, 1, 1],

[0, 1, 1, 1, 0, 0], [0, 1, 1, 1, 0, 0], [0, 0, 1, 1, 0, 0], [0, 0, 1, 1, 0, 0], [0, 0, 1, 1, 0, 0],

[0, 0, 1, 1, 0, 0], [0, 0, 1, 1, 0, 0], [0, 1, 1, 1, 1, 0], [0, 1, 1, 1, 1, 0], [0, 1, 1, 1, 1, 0],

[0, 1, 0, 0, 0, 0], [0, 1, 0, 0, 0, 0], [0, 1, 0, 0, 0, 0], [0, 1, 0, 0, 0, 0], [0, 1, 0, 0, 0, 0]

-Tool:

data transferred:

[378556, 369986, 374435, 368768, 397043,

398025, 393329, 387223, 372120, 384454,

402441, 378325, 383214, 395674, 382279,

395274, 383342, 397554, 387767, 376522]

ram:

[418997, 423112, 393460, 401235, 413568,

400784, 387769, 405442, 398666, 412263,

390972, 404662, 432177, 421005, 392187,

383340, 401217, 411079, 412219, 401265]

change num:

[13, 12, 12, 13, 14,

13, 14, 12, 13, 14,

13, 12, 11, 13, 14,

13, 13, 12, 13, 13]

change actions:

[0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [1, 0, 1, 1, 1, 1], [1, 1, 1, 0, 1, 1], [1, 1, 1, 1, 1, 1],

[0, 1, 1, 1, 1, 1], [0, 1, 1, 1, 1, 1], [0, 0, 1, 1, 0, 1], [0, 0, 1, 1, 1, 0], [0, 0, 1, 1, 1, 1],

[0, 0, 1, 0, 1, 1], [0, 0, 0, 1, 1, 1], [0, 1, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 1, 1, 1, 1, 1],

[0, 1, 0, 0, 1, 1], [0, 1, 0, 1, 0, 1], [0, 1, 0, 0, 1, 1], [0, 1, 0, 0, 1, 1], [0, 1, 0, 0, 1, 1]

Move script bottom, remove opacity, convert span to strong, remove unused CSS, compress images, convert images format

1. **WebProject 05**

- fitness value: data transferred + the number of changes + page load time

- Random generation data:

transferred data:

[824911, 824946, 824970, 824947, 824963,

824951, 824950, 787507, 824958, 825304,

824966, 947202, 824946, 824962, 824968,

947189, 824959, 824975, 947217, 910468]

page load time:

[1461, 1414, 1400, 1402, 1399,

1401, 1402, 1457, 1400, 1431,

1407, 1528, 1416, 1407, 1404,

1460, 1402, 1411, 1517, 1530]

change num:

[5, 11, 9, 6, 9,

5, 9, 6, 4, 8,

9, 5, 4, 10, 8,

5, 9, 6, 5, 4]

actions taken:

[0, 0, 0, 1, 1, 1], [0, 0, 0, 1, 1, 1], [1, 1, 1, 1, 1, 1], [1, 0, 0, 1, 0, 1], [1, 0, 1, 1, 1, 1],

[0, 1, 1, 1, 1, 1], [1, 1, 0, 1, 1, 0], [0, 0, 0, 1, 0, 1], [1, 1, 1, 1, 0, 0], [1, 1, 1, 1, 0, 0],

[0, 1, 1, 1, 1, 0], [0, 0, 0, 0, 0, 1], [0, 1, 1, 1, 0, 1], [1, 1, 1, 1, 0, 1], [1, 1, 0, 1, 0, 1],

[1, 1, 0, 1, 0, 1], [1, 1, 0, 0, 1, 0], [1, 0, 1, 1, 0, 1], [1, 0, 1, 1, 0, 1], [0, 0, 1, 0, 0, 1]

* Tool:

data transferred:

[808267, 781203, 803903, 802808, 817575,

806465, 798690, 784164, 796338, 793394,

807842, 803711, 815327, 812355, 793405,

795481, 811273, 781188, 780554, 812232]

page load time:

[1405, 1404, 1391, 1399, 1391,

1405, 1393, 1391, 1391, 1396,

1393, 1390, 1402, 1396, 1397,

1395, 1398, 1393, 1396, 1403]

change num:

[9, 10, 9, 8, 10,

9, 9, 9, 8, 8,

10, 9, 9, 9, 10,

8, 9, 8, 8, 9]

actions taken:

[0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 1, 1, 1, 1, 1], [1, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1],

[0, 1, 1, 0, 1, 1], [1, 0, 0, 1, 1, 1], [0, 1, 0, 1, 1, 1], [1, 1, 1, 1, 1, 1], [1, 1, 1, 1, 1, 1],

[0, 0, 1, 1, 1, 1], [0, 0, 1, 0, 1, 1], [0, 1, 1, 1, 1, 1], [0, 1, 1, 1, 1, 1], [1, 1, 0, 1, 1, 1],

[0, 1, 0, 1, 1, 1], [1, 0, 0, 0, 1, 1], [0, 0, 1, 1, 1, 1], [1, 0, 1, 1, 1, 1], [0, 1, 1, 0, 1, 1]

- fitness value: data transferred + the number of changes + RAM

data transferred:

[947190, 824962, 947192, 824917, 947193,

824962, 824965, 824961, 824962, 947191,

947184, 824905, 824953, 787567, 947201,

824957, 947186, 824951, 910458, 947193]

ram:

[192080.0, 148684.0, 191088.0, 148204.0, 190820.0,

143320.0, 140184.0, 145704.0, 139348.0, 192688.0,

187268.0, 146080.0, 145280.0, 139772.0, 188856.0,

145716.0, 188636.0, 139520.0, 188404.0, 188988.0]

change\_num:

[5, 9, 1, 6, 1,

7, 9, 8, 3, 0,

5, 3, 4, 8, 1,

2, 6, 8, 6, 5]

actions taken:

[1, 0, 1, 0, 1, 1], [1, 0, 1, 1, 1, 0], [0, 0, 1, 0, 0, 0], [1, 1, 0, 0, 1, 1], [1, 1, 0, 0, 1, 1],

[1, 1, 0, 0, 1, 0], [0, 1, 1, 1, 1, 1], [1, 1, 0, 0, 1, 1], [1, 1, 0, 0, 1, 1], [0, 0, 0, 0, 0, 0],

[0, 0, 0, 0, 0, 0], [1, 1, 1, 0, 0, 0], [0, 0, 1, 1, 1, 1], [1, 0, 1, 1, 0, 1], [1, 0, 0, 0, 0, 0],

[0, 1, 0, 1, 0, 0], [1, 0, 1, 0, 1, 1], [1, 0, 1, 0, 1, 1], [0, 0, 0, 0, 0, 1], [0, 0, 0, 0, 0, 1],

-Tool:

data transferred:

[824985, 818332, 817996, 823747, 815149,

824843, 815416, 818715, 815670, 822864,

815153, 818855, 823785, 817356, 822370,

817653, 817736, 816561, 823563, 815085]

ram:

[140734, 141138, 140020, 141003, 139676,

139258, 139677, 139535, 141520, 139647,

139477, 139666, 139426, 141088, 141388,

140607, 140846, 139016, 141361, 139288]

change\_num:

[8, 9, 9, 9, 8,

7, 10, 9, 8, 9,

7, 9, 10, 9, 9,

8, 9, 9, 7, 9]

actions taken:

[1, 0, 1, 1, 1, 1], [1, 0, 0, 1, 1, 1], [0, 0, 1, 0, 1, 1], [1, 1, 0, 1, 1, 1], [1, 0, 0, 0, 1, 1],

[1, 0, 1, 0, 1, 1], [0, 1, 0, 1, 1, 1], [0, 1, 0, 0, 1, 1], [1, 1, 0, 0, 1, 1], [0, 0, 0, 1, 1, 1],

[0, 0, 1, 0, 1, 1], [0, 0, 1, 0, 1, 1], [0, 1, 0, 1, 1, 1], [1, 1, 1, 1, 0, 1], [1, 0, 1, 0, 1, 1],

[0, 1, 1, 1, 1, 1], [1, 0, 1, 1, 1, 1], [1, 0, 1, 1, 1, 1], [0, 1, 0, 0, 1, 1], [1, 0, 0, 0, 1, 1],

1. **WebProject 06**

- fitness value: data transferred + the number of changes + page load time

- Random generation data:

data transferred:

[767140, 498282, 821474, 767129, 893184,

821497, 498333, 553578, 872652, 872629,

843965, 576195, 893215, 800856, 498328,

685888, 767216, 553557, 767060, 872590]

page load time:

[6681, 6550, 6748, 6543, 5286,

3035, 5181, 6058, 6416, 8492,

4839, 4952, 5757, 6922, 5154,

7612, 6729, 5296, 6506, 6196]

change num:

[2, 3, 4, 2, 3,

4, 3, 6, 1, 1,

0, 2, 2, 1, 2,

4, 2, 5, 2, 2]

actions taken:

[0, 0, 1, 1, 0, 0], [0, 0, 0, 1, 1, 0], [1, 1, 1, 1, 0, 0], [0, 0, 1, 1, 0, 0], [1, 1, 1, 0, 0, 0],

[1, 1, 1, 1, 0, 0], [0, 0, 0, 1, 1, 0], [1, 1, 1, 1, 0, 1], [0, 1, 0, 0, 1, 0], [0, 0, 1, 0, 0, 0],

[0, 0, 0, 0, 0, 0], [0, 0, 0, 0, 1, 1], [1, 1, 0, 0, 0, 0], [0, 0, 0, 1, 0, 0], [0, 0, 0, 1, 0, 0],

[1, 1, 1, 0, 1, 1], [0, 0, 0, 1, 1, 1], [1, 1, 0, 1, 1, 0], [0, 1, 0, 1, 0, 0], [0, 0, 1, 0, 0, 1]

-Tool:

data transferred

[486949, 506852, 496715, 487200, 538834,

491618, 545408, 541089, 537232, 538005,

498665, 506327, 534794, 486642, 539017,

526276, 536755, 489197, 523483, 539313]

page load time:

[4869, 5403, 5347, 5490, 5134,

5464, 4961, 4800, 5209, 5131,

4816, 5258, 5425, 5077, 4936,

5159, 5097, 4810, 5091, 5317]

change num:

[5, 5, 4, 6, 3,

4, 4, 6, 5, 5,

4, 3, 3, 4, 5,

5, 4, 4, 3, 5]

actions taken:

[0, 0, 0, 1, 1, 1], [0, 0, 0, 1, 1, 1], [1, 1, 1, 1, 1, 0], [0, 0, 1, 1, 1, 1], [0, 1, 1, 0, 1, 1],

[0, 0, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1], [1, 0, 1, 1, 0, 1], [0, 1, 0, 0, 1, 1], [0, 0, 1, 1, 1, 1],

[0, 0, 0, 1, 1, 1], [0, 0, 0, 1, 1, 1], [1, 1, 0, 1, 1, 0], [0, 0, 0, 1, 1, 1], [0, 0, 0, 1, 1, 1],

[0, 0, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1], [1, 0, 0, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1]

- fitness value: data transferred + the number of changes + RAM

data transferred:

[576075, 685978, 800821, 632049, 843993,

767150, 767161, 553650, 576036, 821450,

685942, 876952, 685965, 843922, 609834,

943071, 630353, 877041, 821545, 843961]

ram:

[189124.0, 181112.0, 209108.0, 183868.0, 208996.0,

198548.0, 203756.0, 184416.0, 184240.0, 195796.0,

183548.0, 200316.0, 180728.0, 206024.0, 186352.0,

203440.0, 182368.0, 195412.0, 204888.0, 201620.0]

num change:

[2, 4, 3, 4, 1,

1, 2, 5, 3, 2,

3, 4, 3, 1, 3,

3, 3, 3, 4, 2]

actions taken:

[0, 1, 0, 0, 1, 0], [1, 1, 0, 0, 1, 1], [0, 1, 1, 1, 1, 0], [1, 0, 1, 0, 1, 1], [0, 1, 0, 0, 0, 1],

[0, 0, 0, 1, 0, 0], [0, 0, 1, 1, 0, 1], [1, 1, 1, 1, 0, 1], [0, 1, 1, 0, 1, 0], [1, 0, 0, 1, 0, 0],

[1, 0, 1, 0, 1, 1], [1, 1, 0, 1, 1, 0], [1, 1, 0, 0, 0, 1], [0, 0, 1, 0, 0, 0], [0, 0, 1, 0, 1, 1],

[1, 1, 1, 0, 0, 0], [1, 0, 1, 0, 1, 0], [1, 1, 0, 1, 0, 0], [1, 1, 1, 1, 0, 1], [0, 1, 1, 0, 1, 0]

-Tool:

data transferred:

[558399, 569661, 569082, 560861, 563113,

578880, 552662, 551470, 554272, 564289,

558715, 568086, 570305, 564033, 579997,

556750, 575794, 560898, 553627, 579283]

ram:

[180171.0, 182233.0, 183327.0, 183850.0, 180339.0,

185984.0, 182966.0, 183856.0, 184225.0, 180023.0,

180472.0, 181045.0, 180370.0, 181403.0, 185667.0,

181660.0, 181881.0, 183082.0, 185344.0, 180706.0]

num change:

[4, 4, 4, 4, 4,

4, 4, 4, 5, 5,

5, 4, 4, 5, 5,

5, 4, 5, 5, 5]

actions taken:

[0, 1, 0, 1, 1, 1], [1, 0, 0, 0, 1, 1], [0, 1, 0, 1, 1, 1], [1, 0, 0, 0, 1, 1], [0, 1, 0, 1, 1, 1],

[0, 0, 0, 1, 1, 1], [0, 0, 1, 0, 1, 1], [1, 0, 0, 1, 0, 1], [0, 1, 0, 0, 1, 1], [1, 0, 0, 1, 1, 1],

[0, 0, 1, 1, 1, 1], [1, 0, 0, 1, 1, 1], [1, 1, 0, 0, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1],

[0, 1, 1, 0, 1, 1], [1, 0, 1, 0, 1, 0], [1, 1, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1]

1. **WebProject 07**

- fitness value: data transferred + the number of changes + page load time

- Random generation data:

data transferred:

[736457, 736523, 1342821, 736207, 1342800,

741369, 736532, 736532, 740745, 736779,

1343151, 736525, 736525, 736436, 1342811,

741085, 736172, 736517, 741204, 736173]

page load time:

[905, 988, 907, 985, 908,

984, 986, 987, 891, 975,

912, 985, 973, 1062, 1057,

992, 983, 986, 922, 1083]

change num:

[4, 5, 1, 2, 4,

5, 2, 5, 5, 2,

3, 2, 6, 3, 1,

4, 4, 3, 4, 4]

actions taken:

[1, 0, 1, 1, 1, 1], [1, 1, 0, 1, 0, 1], [0, 0, 1, 0, 0, 0], [0, 0, 1, 1, 0, 0], [1, 0, 1, 0, 1, 0],

[0, 1, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 1, 1, 1, 1, 0], [0, 1, 0, 1, 1, 1], [0, 1, 0, 1, 0, 0],

[0, 0, 1, 0, 0, 1], [1, 0, 0, 1, 1, 0], [1, 1, 1, 0, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 0, 0, 1, 0],

[1, 1, 1, 0, 1, 1], [1, 1, 1, 0, 1, 0], [1, 1, 1, 0, 1, 0], [1, 1, 1, 0, 1, 0], [0, 0, 1, 1, 1, 0]

* tool:

data transferred:

[734185, 739723, 736535, 732838, 735889,

737471, 732812, 739225, 732975, 735676,

738015, 739825, 736803, 734755, 739728,

732071, 736625, 739655, 737035, 739068]

page load time:

[945, 959, 974, 940, 895,

919, 934, 967, 921, 947,

974, 990, 926, 948, 916,

906, 934, 923, 942, 931]

change num:

[5, 5, 4, 4, 5,

5, 5, 5, 5, 4,

5, 5, 4, 5, 5,

4, 5, 4, 5, 4]

actions taken:

[1, 0, 1, 1, 1, 1], [1, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [1, 0, 1, 0, 1, 1],

[0, 1, 0, 0, 1, 1], [0, 0, 0, 0, 1, 1], [0, 1, 1, 1, 1, 0], [0, 1, 1, 1, 1, 1], [0, 1, 0, 1, 0, 1],

[0, 0, 1, 0, 1, 1], [1, 0, 0, 1, 1, 1], [1, 0, 1, 0, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 0, 0, 1, 1],

[1, 0, 0, 0, 1, 1], [1, 1, 1, 0, 1, 1], [1, 0, 1, 0, 1, 1], [1, 0, 1, 0, 1, 1], [0, 0, 0, 1, 1, 1]

- fitness value: data transferred + the number of changes + RAM

data transferred:

[1331793, 716683, 1331796, 1333368, 716686,

716683, 716684, 716675, 726891, 1331797,

716684, 716690, 1331793, 1333523, 716675,

1331802, 726887, 716702, 716687, 1331794]

ram:

[141732.0, 164272.0, 168684.0, 171756.0, 164220.0,

163096.0, 164340.0, 162396.0, 158760.0, 143252.0,

138828.0, 164348.0, 152952.0, 168280.0, 158388.0,

144368.0, 153008.0, 156280.0, 162912.0, 152676.0]

change num:

[2, 4, 2, 3, 5,

4, 2, 3, 4, 1,

4, 2, 1, 5, 3,

1, 5, 2, 3, 1]

actions taken:

[0, 0, 1, 0, 1, 0], [0, 1, 1, 0, 0, 1], [0, 0, 1, 0, 1, 1], [1, 0, 0, 0, 0, 1], [1, 1, 1, 1, 0, 1],

[0, 1, 1, 1, 1, 1], [0, 1, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 1, 1, 0, 1, 1], [0, 0, 0, 0, 1, 0],

[1, 1, 1, 1, 0, 0], [0, 0, 0, 1, 1, 1], [0, 0, 1, 0, 0, 0], [1, 0, 1, 0, 1, 1], [1, 0, 1, 1, 1, 1],

[0, 0, 1, 0, 0, 1], [1, 1, 1, 1, 1, 1], [1, 1, 1, 1, 1, 1], [1, 0, 1, 1, 0, 0], [0, 0, 1, 0, 0, 0]

* Tool:

data transferred:

[716805, 716640, 716581, 716715, 716029,

716325, 716365, 716713, 716624, 716110,

717093, 716187, 716944, 717001, 716576,

716594, 716514, 717038, 716929, 716820]

ram:

[147225, 145259, 138927, 141509, 140281,

142757, 142400, 143721, 138894, 144009,

145806, 142142, 146151, 149728, 139481,

142501, 140328, 140891, 145010, 149209]

change num:

[5, 4, 5, 5, 5,

4, 5, 4, 5, 4,

4, 5, 5, 4, 5,

4, 4, 5, 5, 5]

actions taken:

[0, 0, 1, 1, 1, 1], [0, 1, 0, 0, 1, 1], [0, 0, 1, 1, 1, 1], [1, 0, 0, 0, 1, 1], [0, 0, 1, 1, 1, 1],

[0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 1, 0, 1, 1], [0, 0, 0, 1, 1, 1],

[1, 1, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1], [0, 0, 1, 1, 1, 0], [1, 0, 1, 0, 1, 1], [1, 0, 1, 0, 1, 1],

[0, 0, 1, 0, 1, 1], [1, 0, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1], [1, 0, 1, 1, 1, 1], [0, 0, 1, 0, 1, 0]

1. **WebProject 08**

- fitness value: data transferred + the number of changes + page load time

- Random generation data:

data transferred:

[4640347, 4117916, 4640351, 4507663, 4640895,

4118088, 4640828, 4245319, 4640560, 4640875,

4179579, 4640346, 4180028, 4640833, 4143890,

4278671, 4640598, 4179453, 4640549, 4187139]

page load time:

[1461, 1414, 1400, 1402, 1399,

1401, 1402, 1457, 1400, 1431,

1407, 1528, 1416, 1407, 1404,

1460, 1402, 1411, 1517, 1530]

change num:

[6, 31, 20, 5, 6,

33, 9, 34, 18, 17,

35, 10, 33, 12, 34,

30, 15, 33, 17, 34]

actions taken:

[0, 0, 0, 1, 1, 1], [1, 1, 0, 1, 0, 1], [1, 1, 1, 1, 1, 1], [1, 0, 0, 1, 0, 1], [1, 0, 1, 1, 1, 1],

[0, 1, 1, 1, 1, 1], [1, 1, 0, 1, 1, 0], [0, 0, 0, 1, 0, 1], [1, 1, 1, 1, 0, 0], [0, 0, 0, 1, 1, 1],

[0, 1, 1, 1, 1, 0], [0, 0, 0, 0, 0, 1], [0, 1, 1, 1, 0, 1], [1, 1, 1, 1, 0, 1], [1, 1, 0, 1, 0, 1],

[1, 0, 0, 0, 1, 1], [1, 1, 0, 0, 1, 0], [1, 0, 1, 1, 0, 1], [0, 0, 1, 0, 1, 1], [0, 0, 1, 0, 0, 1]

* tool:

data transferred:

[4146648, 4108188, 4109653, 4110517, 4101524,

4156750, 4147565, 4100127, 4151888, 4133537,

4110613, 4137134, 4159756, 4111958, 4150581,

4112905, 4154451, 4118874, 4112360, 4158551]

page load time:

[1404, 1410, 1395, 1395, 1403,

1395, 1408, 1398, 1405, 1404,

1397, 1399, 1409, 1408, 1395,

1400, 1392, 1408, 1403, 1410]

change num:

[32, 31, 32, 30, 33,

33, 31, 34, 32, 31,

33, 35, 31, 31, 34,

33, 33, 33, 33, 32]

actions taken:

[0, 0, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1], [1, 0, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1],

[0, 1, 0, 1, 0, 1], [0, 1, 0, 1, 1, 0], [0, 0, 0, 1, 1, 1], [0, 0, 1, 1, 1, 0], [0, 0, 0, 1, 1, 1],

[0, 0, 1, 1, 1, 1], [0, 0, 1, 0, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1],

[1, 0, 1, 0, 1, 1], [1, 0, 0, 0, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 0, 1, 1], [0, 0, 1, 1, 1, 1]

- fitness value: data transferred + the number of changes + RAM

- random generation tool:

data transferred:

[4640270, 4179726, 4118102, 4640589, 4640589,

4640314, 4147333, 4118368, 4212636, 4179492,

4117559, 4144221, 4549102, 4640545, 4179485,

4117570, 4640551, 4640556, 4118127, 4118076]

ram:

[232708.0, 231440.0, 234412.0, 233772.0, 235120.0,

228420.0, 229692.0, 201032.0, 244916.0, 244592.0,

206984.0, 232796.0, 242492.0, 249812.0, 203064.0,

238968.0, 231544.0, 202904.0, 231772.0, 249528.0]

change num:

[34, 33, 3, 30, 37,

0, 2, 4, 31, 1,

34, 34, 3, 2, 3,

29, 33, 32, 36, 39]

actions taken:

[0, 1, 1, 0, 0, 1], [1, 0, 1, 0, 0, 1], [1, 0, 1, 1, 0, 0], [1, 0, 0, 1, 0, 1], [1, 0, 0, 1, 0, 1],

[0, 0, 0, 0, 0, 0], [1, 0, 1, 0, 0, 0], [1, 1, 1, 1, 0, 0], [1, 0, 1, 1, 0, 1], [1, 0, 0, 0, 0, 0],

[1, 0, 1, 1, 1, 0], [1, 1, 0, 0, 1, 1], [1, 1, 0, 1, 0, 0], [0, 1, 0, 1, 0, 0], [1, 0, 1, 1, 0, 0],

[1, 0, 0, 0, 1, 1], [0, 1, 0, 0, 0, 1], [0, 1, 0, 1, 0, 1], [1, 1, 1, 1, 1, 1], [1, 1, 1, 0, 1, 0]

-Tool:

data transferred:

[4103699, 4112925, 4114997, 4109055, 4107335,

4100244, 4116794, 4111202, 4119625, 4112310,

4107774, 4101339, 4116595, 4112049, 4115246,

4109343, 4101773, 4102448, 4116200, 4110872]

ram:

[207787, 204279, 204966, 200484, 207190,

207664, 209294, 206179, 202560, 205884,

200940, 206188, 209707, 209923, 208821,

200823, 209146, 207858, 204461, 207795]

change num:

[34, 35, 34, 32, 32,

30, 32, 34, 33, 31,

33, 34, 33, 32, 35,

30, 33, 33, 34, 33]

actions taken:

[0, 1, 0, 0, 1, 1], [1, 1, 1, 0, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1],

[0, 0, 0, 1, 1, 1], [0, 0, 1, 0, 1, 1], [0, 0, 1, 1, 1, 1], [1, 0, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1],

[0, 0, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1], [1, 0, 0, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1],

[1, 0, 0, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1]

1. **WebProject 09**

**-random generation tool:**

data transferred:

[1056195, 656262, 1287065, 996128, 1287403,

1273681, 917621, 1164442, 1287442, 1287442,

1287442, 1287369, 1287369, 1287450, 710343,

1271657, 919729, 919729, 943044, 999416]

page load time:

[6407, 6511, 6656, 6293, 7145,

6400, 6322, 6501, 7070, 7070,

7070, 7128, 7128, 6996, 7029,

6396, 7399, 7399, 6399, 6434]

change num:

[12, 14, 1, 14, 10,

9, 13, 13, 2, 12,

17, 0, 11, 1, 14,

11, 11, 10, 9, 10]

actions taken:

[1, 1, 1, 0, 1, 1], [1, 1, 0, 1, 1, 0], [0, 0, 0, 1, 0, 0], [0, 0, 1, 1, 1, 0], [0, 0, 1, 1, 1, 0],

[0, 1, 1, 1, 0, 1], [0, 0, 1, 1, 0, 1], [1, 1, 0, 1, 0, 1], [0, 1, 1, 0, 0, 0], [0, 1, 1, 0, 0, 0],

[0, 1, 1, 1, 1, 1], [0, 0, 0, 0, 0, 0], [0, 1, 0, 1, 1, 1], [0, 1, 0, 0, 0, 0], [1, 1, 0, 0, 0, 1],

[0, 0, 1, 1, 1, 0], [0, 0, 1, 1, 1, 0], [0, 1, 0, 0, 1, 1], [0, 1, 0, 0, 1, 1], [1, 0, 1, 0, 1, 0]

-Tool:

data transferred:

[715338, 663402, 687165, 919909, 895147,

710664, 784489, 835735, 811582, 885561,

814551, 676514, 660012, 879359, 750433,

701791, 672170, 741767, 850374, 774274]

page load time:

[6418, 6350, 6417, 6361, 6341,

6428, 6372, 6463, 6456, 6419,

6340, 6326, 6388, 6309, 6500,

6343, 6350, 6385, 6361, 6303]

change num:

[13, 13, 14, 14, 12,

10, 12, 13, 12, 13,

14, 12, 13, 14, 12,

13, 12, 13, 14, 12]

actions taken:

[0, 1, 1, 0, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1],

[0, 1, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 1, 1, 0, 1, 1], [0, 1, 1, 0, 1, 0],

[0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1], [0, 1, 0, 0, 1, 1], [1, 0, 1, 0, 1, 1],

[0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 1, 0, 1, 0]

- fitness value: data transferred + the number of changes + RAM

-random generation tool:

data transferred:

[900525, 824154, 1286993, 856655, 918232,

918232, 1287427, 1287427, 1287115, 1038275,

1038275, 858199, 1273661, 1273661, 1273661,

731533, 1136231, 1271682, 760182, 1129172]

ram:

[186272.0, 167780.0, 181444.0, 179272.0, 185820.0,

101892.0, 183224.0, 100596.0, 181096.0, 180600.0,

100496.0, 179668.0, 187388.0, 100232.0, 100548.0,

167500.0, 181680.0, 181852.0, 167740.0, 183676.0]

change num:

[12, 11, 1, 16, 12,

13, 0, 13, 3, 9,

9, 14, 9, 10, 11,

12, 11, 10, 12, 11]

actions taken:

[1, 0, 0, 0, 1, 0], [1, 0, 0, 0, 1, 0], [0, 0, 1, 0, 0, 0], [0, 0, 1, 0, 0, 0], [0, 0, 0, 0, 1, 0],

[0, 0, 0, 0, 1, 0], [0, 0, 0, 0, 0, 0], [1, 1, 0, 1, 1, 1], [0, 1, 1, 1, 0, 0], [0, 0, 0, 0, 0, 1],

[1, 1, 1, 1, 1, 1], [1, 1, 1, 1, 1, 1], [1, 1, 0, 0, 1, 0], [0, 0, 1, 1, 1, 1], [0, 1, 1, 0, 1, 1],

[0, 1, 1, 0, 1, 1], [0, 0, 0, 1, 1, 0], [0, 1, 0, 0, 1, 0], [0, 1, 0, 1, 0, 1], [0, 1, 0, 1, 0, 1]

-Tool:

data transferred:

[825392, 885798, 806815, 887033, 846954,

779620, 775052, 837027, 888087, 866533,

777306, 871698, 886710, 809005, 880983,

880830, 827282, 762254, 780779, 908616]

ram:

[106616, 100309, 106026, 108506, 102605,

108053, 107718, 109872, 108791, 103773,

107598, 100571, 100706, 109793, 102282,

108535, 106839, 106762, 108943, 109768]

change num:

[13, 13, 12, 14, 13,

13, 13, 14, 13, 12,

14, 12, 13, 11, 11,

13, 12, 11, 14, 14]

actions taken:

[1, 0, 0, 1, 1, 1], [1, 0, 0, 1, 1, 1], [0, 0, 1, 0, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1],

[0, 0, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1], [1, 0, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1],

[0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1],

[0, 0, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 1, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1]

1. **WebProject 10**

**-random generation tool:**

data transferred:

[1390088, 1419475, 909657, 1419435, 1035446,

1392827, 1419439, 1409188, 1101072, 1118970,

558914, 763501, 774419, 871579, 1080443,

1419439, 1026708, 1035180, 1419015, 1026734]

page load time:

[1861, 1854, 3248, 1852, 1865,

1857, 1856, 1859, 1859, 1859,

1860, 1860, 1856, 1858, 3464,

1858, 1852, 1857, 1860, 1856]

change num:

[4, 4, 4, 1, 4,

2, 4, 3, 7, 4,

6, 7, 8, 5, 5,

4, 7, 3, 2, 7]

actions taken:

[0, 1, 0, 1, 1, 0], [1, 1, 1, 1, 0, 0], [0, 0, 1, 0, 1, 0], [0, 1, 0, 0, 0, 0], [0, 1, 0, 0, 0, 0],

[0, 1, 0, 0, 0, 0], [1, 1, 1, 1, 0, 0], [1, 0, 0, 1, 1, 1], [1, 1, 1, 0, 1, 1], [0, 1, 0, 0, 0, 1],

[0, 1, 0, 1, 1, 0], [1, 1, 0, 1, 0, 1], [1, 1, 1, 1, 0, 1], [1, 1, 0, 0, 1, 1], [0, 0, 1, 0, 0, 1],

[1, 1, 1, 1, 0, 0], [1, 1, 1, 1, 0, 0], [0, 1, 0, 0, 0, 1], [1, 1, 0, 0, 0, 0], [0, 1, 0, 1, 0, 1]

-Tool:

data transferred:

[612078, 580501, 759650, 702021, 629471,

681972, 733008, 642456, 630480, 754582,

551729, 694443, 554861, 593198, 769495,

660776, 619929, 637805, 718818, 679031]

page load time:

[1853, 1858, 1852, 1851, 1851,

1855, 1856, 1857, 1858, 1853,

1855, 1851, 1854, 1859, 1850,

1860, 1858, 1854, 1858, 1856]

change num:

[9, 10, 13, 12, 10,

11, 13, 13, 12, 11,

11, 12, 12, 13, 12,

10, 11, 14, 13, 14]

actions taken:

[0, 1, 1, 1, 1, 1], [1, 1, 1, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 1, 0, 1, 1, 1],

[0, 1, 0, 1, 1, 1], [1, 0, 1, 1, 1, 1], [1, 0, 1, 1, 1, 1], [1, 1, 0, 0, 1, 1], [0, 1, 1, 0, 1, 1],

[0, 0, 0, 1, 1, 1], [1, 1, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1], [0, 0, 1, 1, 1, 1],

[0, 0, 1, 1, 1, 1], [0, 1, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 0, 1, 1, 1], [0, 1, 1, 1, 1, 1]

- fitness value: data transferred + the number of changes + RAM

-random generation tool:

data transferred：

[1026714, 1026714, 1026703, 1026705, 1026731,

1026706, 1026710, 1026726, 1026710, 1026708,

1026703, 1026703, 1026741, 1026714, 1026710,

1026703, 1026707, 1026712, 1026714, 1026708]

ram:

[182368.0, 183616.0, 183952.0, 180756.0, 184676.0,

178260.0, 189440.0, 178164.0, 183384.0, 178144.0,

183140.0, 188820.0, 182612.0, 176200.0, 189256.0,

182612.0, 176844.0, 177188.0, 190396.0, 184708.0]

change num:

[3, 2, 10, 4, 11,

14, 1, 11, 9, 8,

12, 2, 12, 14, 3,

15, 0, 13, 3, 1]

actions taken:

[0, 1, 1, 1, 0, 0], [0, 1, 0, 1, 0, 0], [0, 0, 1, 0, 0, 1], [1, 1, 1, 1, 0, 0], [0, 0, 1, 1, 0, 1],

[0, 0, 1, 1, 0, 1], [0, 0, 0, 1, 0, 0], [1, 1, 1, 1, 1, 1], [1, 1, 0, 1, 0, 1], [0, 0, 0, 0, 0, 1],

[0, 1, 1, 0, 1, 1], [0, 1, 1, 0, 0, 0], [0, 1, 1, 0, 0, 0], [0, 1, 1, 0, 0, 0], [0, 1, 1, 1, 0, 0],

[1, 0, 0, 0, 0, 1], [0, 0, 0, 0, 0, 0], [1, 0, 0, 1, 0, 1], [1, 1, 1, 0, 0, 0], [0, 0, 1, 0, 0, 0]

-Tool:

data transferred:

[1007308, 1008416, 1008388, 1012015, 1022773,

1018631, 1025203, 1010003, 1015829, 1026246,

1009645, 1018483, 1011952, 1010624, 1017387,

1009376, 1020316, 1012426, 1023851, 1023474]

ram:

[177903, 176365, 176280, 177366, 177865,

177450, 177804, 177267, 176080, 176867,

177513, 176260, 176118, 176128, 176659,

176956, 176911, 177148, 177108, 176867]

change num:

[11, 12, 13, 14, 13,

14, 11, 13, 13, 12,

13, 12, 13, 12, 13,

14, 11, 12, 13, 12]

actions taken:

[0, 1, 1, 1, 1, 1], [0, 1, 0, 1, 1, 1], [0, 0, 1, 0, 1, 1], [0, 1, 1, 1, 1, 1], [0, 0, 0, 1, 1, 1],

[0, 0, 1, 1, 1, 1], [0, 0, 1, 1, 1, 0], [1, 1, 1, 1, 1, 0], [0, 1, 0, 1, 1, 1], [0, 0, 0, 1, 1, 1],

[0, 0, 1, 1, 1, 1], [0, 1, 1, 0, 1, 1], [0, 1, 1, 1, 1, 1], [0, 1, 1, 0, 1, 1], [0, 1, 0, 1, 1, 1],

[1, 0, 0, 1, 1, 1], [0, 0, 1, 0, 1, 1], [0, 0, 0, 1, 1, 1], [0, 1, 1, 0, 1, 1], [0, 0, 1, 1, 1, 1]