JAI SHAH - 1001380311

main('input1.txt', 1, 10)

Matrix U:
Row 1: 0.5098
Row 2: 0.3420
Row 3: 0.2465
Row 4: 0.3955
Row 5: 0.1282
Row 6: 0.5452
Row 7: 0.3038

Matrix S:
Row 1: 2.9929

Matrix V:
Row 1: 0.3410
Row 2: 0.4847
Row 3: 0.1703
Row 4: 0.3025
Row 5: 0.0428
Row 6: 0.5683
Row 7: 0.1822
Row 8: 0.1143
Row 9: 0.3967

Reconstruction (U*S*V'):
Row 1: 0.5202 0.7395 0.2599 0.4615 0.0654 0.8670 0.2779 0.1743 0.6052
Row 2: 0.3490 0.4960 0.1743 0.3096 0.0439 0.5816 0.1864 0.1169 0.4060
Row 3: 0.2515 0.3575 0.1256 0.2231 0.0316 0.4192 0.1344 0.0843 0.2926
Row 4: 0.4036 0.5737 0.2016 0.3581 0.0507 0.6727 0.2157 0.1353 0.4696
Row 5: 0.1309 0.1860 0.0654 0.1161 0.0164 0.2181 0.0699 0.0439 0.1522
Row 6: 0.5564 0.7908 0.2779 0.4936 0.0699 0.9273 0.2973 0.1864 0.6473
Row 7: 0.3100 0.4407 0.1549 0.2750 0.0390 0.5167 0.1656 0.1039 0.3607

JAI SHAH - 1001380311

main('input1.txt', 1, 100)

Matrix U:
Row 1: 0.5098
Row 2: 0.3420
Row 3: 0.2465
Row 4: 0.3955
Row 5: 0.1282
Row 6: 0.5452
Row 7: 0.3038

Matrix S:
Row 1: 2.9929

Matrix V:
Row 1: 0.3410
Row 2: 0.4847
Row 3: 0.1703
Row 4: 0.3025
Row 5: 0.0428
Row 6: 0.5683
Row 7: 0.1822
Row 8: 0.1143
Row 9: 0.3967

Reconstruction (U*S*V'):
Row 1: 0.5202 0.7395 0.2599 0.4615 0.0654 0.8670 0.2779 0.1743 0.6052
Row 2: 0.3490 0.4960 0.1743 0.3096 0.0439 0.5816 0.1864 0.1169 0.4060
Row 3: 0.2515 0.3575 0.1256 0.2231 0.0316 0.4192 0.1344 0.0843 0.2926
Row 4: 0.4036 0.5737 0.2016 0.3581 0.0507 0.6727 0.2157 0.1353 0.4696
Row 5: 0.1309 0.1860 0.0654 0.1161 0.0164 0.2181 0.0699 0.0439 0.1522
Row 6: 0.5564 0.7908 0.2779 0.4936 0.0699 0.9273 0.2973 0.1864 0.6473
Row 7: 0.3100 0.4407 0.1549 0.2750 0.0390 0.5167 0.1656 0.1039 0.3607

JAI SHAH - 1001380311

main('input1.txt', 2, 10)

Matrix U:
Row 1: 0.5098 -0.3014
Row 2: 0.3420 0.5308
Row 3: 0.2465 0.2610
Row 4: 0.3955 -0.4015
Row 5: 0.1282 0.4180
Row 6: 0.5452 -0.2116
Row 7: 0.3038 0.4226

Matrix S:
Row 1: 2.9929 0.0000
Row 2: 0.0000 2.2147

Matrix V:
Row 1: 0.3410 0.7371
Row 2: 0.4847 -0.4129
Row 3: 0.1703 -0.1361
Row 4: 0.3025 -0.3174
Row 5: 0.0428 0.1887
Row 6: 0.5683 0.1988
Row 7: 0.1822 -0.0955
Row 8: 0.1143 0.2397
Row 9: 0.3967 -0.1590

Reconstruction (U*S*V'):
Row 1: 0.0282 1.0151 0.3507 0.6734 -0.0606 0.7343 0.3417 0.0143 0.7113
Row 2: 1.2154 0.0106 0.0143 -0.0635 0.2657 0.8153 0.0741 0.3987 0.2191
Row 3: 0.6776 0.1188 0.0470 0.0396 0.1407 0.5341 0.0791 0.2228 0.2007
Row 4: -0.2518 0.9409 0.3227 0.6403 -0.1171 0.4959 0.3006 -0.0779 0.6110
Row 5: 0.8132 -0.1963 -0.0606 -0.1777 0.1912 0.4022 -0.0185 0.2657 0.0051
Row 6: 0.2110 0.9843 0.3417 0.6423 -0.0185 0.8341 0.3420 0.0741 0.7218
Row 7: 0.9998 0.0542 0.0275 -0.0220 0.2156 0.7028 0.0762 0.3282 0.2119

JAI SHAH - 1001380311

main('input1.txt', 4, 100)

Matrix U:
Row 1: 0.5098 -0.3014 -0.5931 0.3567
Row 2: 0.3420 0.5308 -0.2658 -0.1579
Row 3: 0.2465 0.2610 0.5642 0.1570
Row 4: 0.3955 -0.4015 0.3596 0.3928
Row 5: 0.1282 0.4180 0.1980 0.4751
Row 6: 0.5452 -0.2116 0.2513 -0.6618
Row 7: 0.3038 0.4226 -0.1662 -0.0723

Matrix S:
Row 1: 2.9929 0.0000 0.0000 0.0000
Row 2: 0.0000 2.2147 0.0000 0.0000
Row 3: 0.0000 0.0000 1.6335 0.0000
Row 4: 0.0000 0.0000 0.0000 1.3586

Matrix V:
Row 1: 0.3410 0.7371 0.2022 0.2958
Row 2: 0.4847 -0.4129 0.0109 0.0645
Row 3: 0.1703 -0.1361 -0.3631 0.2625
Row 4: 0.3025 -0.3174 -0.1430 0.5516
Row 5: 0.0428 0.1887 0.1212 0.3497
Row 6: 0.5683 0.1988 -0.4736 -0.3941
Row 7: 0.1822 -0.0955 0.1539 -0.4871
Row 8: 0.1143 0.2397 -0.1627 -0.1162
Row 9: 0.3967 -0.1590 0.7194 -0.0825

Reconstruction (U*S*V'):
Row 1: -0.0244 1.0358 0.8297 1.0792 -0.0086 1.0022 -0.0434 0.1156 -0.0256
Row 2: 1.0642 -0.0079 0.1156 -0.1198 0.1381 1.1055 0.1118 0.4942 -0.0755
Row 3: 0.9271 0.1426 -0.2317 0.0256 0.3270 0.0135 0.1170 0.0481 0.8461
Row 4: 0.0248 0.9818 0.2495 0.8507 0.1407 0.0074 0.1310 -0.2354 0.9895
Row 5: 1.0695 -0.1511 -0.0086 0.1321 0.4561 -0.0054 -0.2832 0.1381 0.1845
Row 6: 0.0281 0.9308 -0.0434 0.0876 -0.2832 0.9940 0.8432 0.1118 1.0912
Row 7: 0.9159 0.0449 0.1002 -0.0374 0.1483 0.8700 0.0823 0.3838 0.0247