

EXPLORER ... PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS zsh + ×

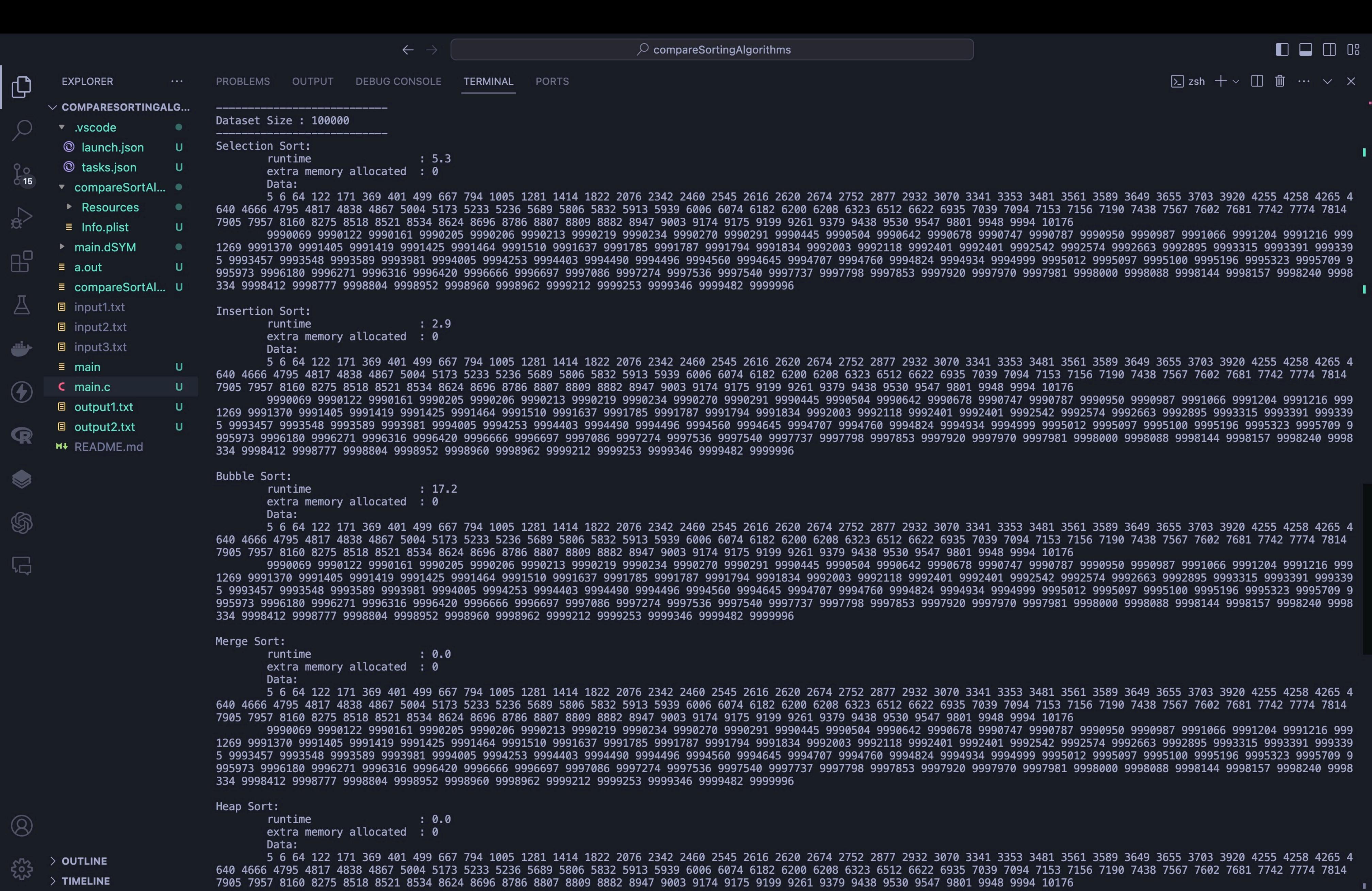
✓ COMPARESORTINGALG... ● devonvillalona@devons-mbp compareSortingAlgorithms % gcc main.c  
● devonvillalona@devons-mbp compareSortingAlgorithms % ./a.out  
Extra memory allocated, size: 40000  
Extra memory allocated, size: 40000

▼ .vscode ●  
① launch.json U  
② tasks.json U  
Dataset Size : 10000

▼ compareSortAl... ●  
► Resources ●  
≡ Info.plist U  
► main.dSYM ●  
≡ a.out U  
≡ compareSortAl... U  
input1.txt  
input2.txt  
input3.txt  
≡ main U  
C main.c U  
input1.txt U  
input2.txt U  
M+ README.md

● devonvillalona@devons-mbp compareSortingAlgorithms % ./a.out  
Extra memory allocated, size: 40000  
-----  
Selection Sort:  
    runtime : 0.1  
    extra memory allocated : 0  
    Data:  
        1 44 123 359 456 586 636 676 690 883 1114 1125 1196 1247 1334 1338 1459 1525 1531 1549 1597 1599 1671 1680 1974 1980 2112 2223 2524 2808 2809 2817 2960 2969 3046 3192 3394  
        3479 3640 3722 3870 4071 4542 4622 4737 4774 4903 5005 5144 5322 5406 5493 5510 5521 5987 6009 6355 6557 6571 6819 6870 6885 6915 6919 6968 6988 7053 7054 7077 7086 7093 7173 728  
        4 7367 7408 7416 7675 7691 7945 8030 8166 8170 8754 9009 9180 9310 9513 9635 9636 9732 9753 9769 9816 9829 9836 10051 10171 10244 10448 10464  
        989664 989698 989761 989812 989856 989869 989883 989982 990148 990392 990465 990824 990870 990895 990913 991178 991217 991279 991470 991811 991821 991918 992088 992331 992  
        460 992554 992630 992670 992795 992816 992836 992902 993038 993173 993312 993513 993551 993561 993592 993607 993692 993866 993875 993888 993897 993921 994009 994013 994176  
        994189 994210 994486 994573 994606 994689 994694 994989 995172 995207 995265 995385 995457 995469 995513 995592 995963 996173 996186 996324 996378 996508 996531 996537 9965  
        44 996690 996753 996842 996866 996994 997070 997290 997601 997785 997825 997873 998165 998170 998240 998370 998835 999107 999415 999420 999606 999791 999810 999963 999990  
    Insertion Sort:  
        runtime : 0.0  
        extra memory allocated : 0  
        Data:  
            1 44 123 359 456 586 636 676 690 883 1114 1125 1196 1247 1334 1338 1459 1525 1531 1549 1597 1599 1671 1680 1974 1980 2112 2223 2524 2808 2809 2817 2960 2969 3046 3192 3394  
            3479 3640 3722 3870 4071 4542 4622 4737 4774 4903 5005 5144 5322 5406 5493 5510 5521 5987 6009 6355 6557 6571 6819 6870 6885 6915 6919 6968 6988 7053 7054 7077 7086 7093 7173 728  
            4 7367 7408 7416 7675 7691 7945 8030 8166 8170 8754 9009 9180 9310 9513 9635 9636 9732 9753 9769 9816 9829 9836 10051 10171 10244 10448 10464  
            989664 989698 989761 989812 989856 989869 989883 989982 990148 990392 990465 990824 990870 990895 990913 991178 991217 991279 991470 991811 991821 991918 992088 992331 992  
            460 992554 992630 992670 992795 992816 992836 992902 993038 993173 993312 993513 993551 993561 993592 993607 993692 993866 993875 993888 993897 993921 994009 994013 994176  
            994189 994210 994486 994573 994606 994689 994694 994989 995172 995207 995265 995385 995457 995469 995513 995592 995963 996173 996186 996324 996378 996508 996531 996537 9965  
            44 996690 996753 996842 996866 996994 997070 997290 997601 997785 997825 997873 998165 998170 998240 998370 998835 999107 999415 999420 999606 999791 999810 999963 999990  
    Bubble Sort:  
        runtime : 0.1  
        extra memory allocated : 0  
        Data:  
            1 44 123 359 456 586 636 676 690 883 1114 1125 1196 1247 1334 1338 1459 1525 1531 1549 1597 1599 1671 1680 1974 1980 2112 2223 2524 2808 2809 2817 2960 2969 3046 3192 3394  
            3479 3640 3722 3870 4071 4542 4622 4737 4774 4903 5005 5144 5322 5406 5493 5510 5521 5987 6009 6355 6557 6571 6819 6870 6885 6915 6919 6968 6988 7053 7054 7077 7086 7093 7173 728  
            4 7367 7408 7416 7675 7691 7945 8030 8166 8170 8754 9009 9180 9310 9513 9635 9636 9732 9753 9769 9816 9829 9836 10051 10171 10244 10448 10464  
            989664 989698 989761 989812 989856 989869 989883 989982 990148 990392 990465 990824 990870 990895 990913 991178 991217 991279 991470 991811 991821 991918 992088 992331 992  
            460 992554 992630 992670 992795 992816 992836 992902 993038 993173 993312 993513 993551 993561 993592 993607 993692 993866 993875 993888 993897 993921 994009 994013 994176  
            994189 994210 994486 994573 994606 994689 994694 994989 995172 995207 995265 995385 995457 995469 995513 995592 995963 996173 996186 996324 996378 996508 996531 996537 9965  
            44 996690 996753 996842 996866 996994 997070 997290 997601 997785 997825 997873 998165 998170 998240 998370 998835 999107 999415 999420 999606 999791 999810 999963 999990  
    Merge Sort:  
        runtime : 0.0  
        extra memory allocated : 0  
        Data:  
            1 44 123 359 456 586 636 676 690 883 1114 1125 1196 1247 1334 1338 1459 1525 1531 1549 1597 1599 1671 1680 1974 1980 2112 2223 2524 2808 2809 2817 2960 2969 3046 3192 3394  
            3479 3640 3722 3870 4071 4542 4622 4737 4774 4903 5005 5144 5322 5406 5493 5510 5521 5987 6009 6355 6557 6571 6819 6870 6885 6915 6919 6968 6988 7053 7054 7077 7086 7093 7173 728  
            4 7367 7408 7416 7675 7691 7945 8030 8166 8170 8754 9009 9180 9310 9513 9635 9636 9732 9753 9769 9816 9829 9836 10051 10171 10244 10448 10464  
            989664 989698 989761 989812 989856 989869 989883 989982 990148 990392 990465 990824 990870 990895 990913 991178 991217 991279 991470 991811 991821 991918 992088 992331 992  
            460 992554 992630 992670 992795 992816 992836 992902 993038 993173 993312 993513 993551 993561 993592 993607 993692 993866 993875 993888 993897 993921 994009 994013 994176  
            994189 994210 994486 994573 994606 994689 994694 994989 995172 995207 995265 995385 995457 995469 995513 995592 995963 996173 996186 996324 996378 996508 996531 996537 9965  
            44 996690 996753 996842 996866 996994 997070 997290 997601 997785 997825 997873 998165 998170 998240 998370 998835 999107 999415 999420 999606 999791 999810 999963 999990  
    Heap Sort:  
        runtime : 0.0  
        extra memory allocated : 0  
        Data:  
            1 44 123 359 456 586 636 676 690 883 1114 1125 1196 1247 1334 1338 1459 1525 1531 1549 1597 1599 1671 1680 1974 1980 2112 2223 2524 2808 2809 2817 2960 2969 3046 3192 3394  
            3479 3640 3722 3870 4071 4542 4622 4737 4774 4903 5005 5144 5322 5406 5493 5510 5521 5987 6009 6355 6557 6571 6819 6870 6885 6915 6919 6968 6988 7053 7054 7077 7086 7093 7173 728  
            4 7367 7408 7416 7675 7691 7945 8030 8166 8170 8754 9009 9180 9310 9513 9635 9636 9732 9753 9769 9816 9829 9836 10051 10171 10244 10448 10464  
            989664 989698 989761 989812 989856 989869 989883 989982 990148 990392 990465 990824 990870 990895 990913 991178 991217 991279 991470 991811 991821 991918 992088 992331 992  
            460 992554 992630 992670 992795 992816 992836 992902 993038 993173 993312 993513 993551 993561 993592 993607 993692 993866 993875 993888 993897 993921 994009 994013 994176  
            994189 994210 994486 994573 994606 994689 994694 994989 995172 995207 995265 995385 995457 995469 995513 995592 995963 996173 996186 996324 996378 996508 996531 996537 9965  
            44 996690 996753 996842 996866 996994 997070 997290 997601 997785 997825 997873 998165 998170 998240 998370 998835 999107 999415 999420 999606 999791 999810 999963 999990







EXPLORER ... PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS zsh + ×

COMPARING ALGORITHMS

.vscode

Selection Sort:

```
runtime : 529.9
extra memory allocated : 0
Data:
173 240 262 272 301 422 510 617 688 757 757 1111 1252 1263 1306 1433 1471 1502 1518 1552 1858 1895 2045 2135 2143 2179 2426 2459 2810 2833 2859 2893 2931 3105 3110 3220 32
37 3377 3396 3638 3683 3771 3932 3995 4103 4142 4458 4469 4496 4542 4699 4781 4872 4887 5131 5356 5426 5451 5458 5719 5926 6090 6334 6370 6405 6414 6488 6600 6716 6827 6892 7386 7
515 7547 7620 7662 7676 7744 7848 7864 7930 7942 7991 8271 8286 8293 8343 8401 8405 8542 8589 8945 8997 9133 9200 9299 9384 9676 9871 9995
99988244 99988293 99988390 99988427 99988441 99988498 99988507 99988568 99988580 99988608 99988825 99989098 99989125 99989138 99989363 99989383 99989619 99989671 99989793
99989879 99989928 99990241 99990250 99990281 99990301 99990327 99990528 99990878 99990895 99991007 99991110 99991221 99991359 99991385 99991518 99991585 99992061 99992096 99992264
99992271 99992487 99992546 99992667 99992673 99992814 99992913 99992937 99993002 99993070 99993250 99993425 99993436 99993439 99993512 99993582 99993635 99993983 99994128 9999440
7 99994416 99994693 99994835 99995009 99995213 99995307 99995471 99995697 99995713 99995716 99995743 99995794 99995861 99996194 99996403 99996621 99996763 99996798 999973
54 99997468 99997670 99997722 99997741 99997744 99997841 99998004 99998052 99998397 99998523 99998774 99998854 99998990 99999103 99999181 99999231 99999371 99999543 99999682 99999
762 99999946
```

Insertion Sort:

```
runtime : 287.2
extra memory allocated : 0
Data:
173 240 262 272 301 422 510 617 688 757 757 1111 1252 1263 1306 1433 1471 1502 1518 1552 1858 1895 2045 2135 2143 2179 2426 2459 2810 2833 2859 2893 2931 3105 3110 3220 32
37 3377 3396 3638 3683 3771 3932 3995 4103 4142 4458 4469 4496 4542 4699 4781 4872 4887 5131 5356 5426 5451 5458 5719 5926 6090 6334 6370 6405 6414 6488 6600 6716 6827 6892 7386 7
515 7547 7620 7662 7676 7744 7848 7864 7930 7942 7991 8271 8286 8293 8343 8401 8405 8542 8589 8945 8997 9133 9200 9299 9384 9676 9871 9995
99988244 99988293 99988390 99988427 99988441 99988498 99988507 99988568 99988580 99988608 99988825 99989098 99989125 99989138 99989363 99989383 99989619 99989671 99989793
99989879 99989928 99990241 99990250 99990281 99990301 99990327 99990528 99990878 99990895 99991007 99991110 99991221 99991359 99991385 99991518 99991585 99992061 99992096 99992264
99992271 99992487 99992546 99992667 99992673 99992814 99992913 99992937 99993002 99993070 99993250 99993425 99993436 99993439 99993512 99993582 99993635 99993983 99994128 9999440
7 99994416 99994693 99994835 99995009 99995213 99995307 99995471 99995697 99995713 99995716 99995743 99995794 99995861 99996194 99996403 99996621 99996763 99996798 999973
54 99997468 99997670 99997722 99997741 99997744 99997841 99998004 99998052 99998397 99998523 99998774 99998854 99998990 99999103 99999181 99999231 99999371 99999543 99999682 99999
762 99999946
```

Bubble Sort:

```
runtime : 1979.5
extra memory allocated : 0
Data:
173 240 262 272 301 422 510 617 688 757 757 1111 1252 1263 1306 1433 1471 1502 1518 1552 1858 1895 2045 2135 2143 2179 2426 2459 2810 2833 2859 2893 2931 3105 3110 3220 32
37 3377 3396 3638 3683 3771 3932 3995 4103 4142 4458 4469 4496 4542 4699 4781 4872 4887 5131 5356 5426 5451 5458 5719 5926 6090 6334 6370 6405 6414 6488 6600 6716 6827 6892 7386 7
515 7547 7620 7662 7676 7744 7848 7864 7930 7942 7991 8271 8286 8293 8343 8401 8405 8542 8589 8945 8997 9133 9200 9299 9384 9676 9871 9995
99988244 99988293 99988390 99988427 99988441 99988498 99988507 99988568 99988580 99988608 99988825 99989098 99989125 99989138 99989363 99989383 99989619 99989671 99989793
99989879 99989928 99990241 99990250 99990281 99990301 99990327 99990528 99990878 99990895 99991007 99991110 99991221 99991359 99991385 99991518 99991585 99992061 99992096 99992264
99992271 99992487 99992546 99992667 99992673 99992814 99992913 99992937 99993002 99993070 99993250 99993425 99993436 99993439 99993512 99993582 99993635 99993983 99994128 9999440
7 99994416 99994693 99994835 99995009 99995213 99995307 99995471 99995697 99995713 99995716 99995743 99995794 99995861 99996194 99996403 99996621 99996763 99996798 999973
54 99997468 99997670 99997722 99997741 99997744 99997841 99998004 99998052 99998397 99998523 99998774 99998854 99998990 99999103 99999181 99999231 99999371 99999543 99999682 99999
762 99999946
```

Merge Sort:

```
runtime : 0.1
extra memory allocated : 0
Data:
173 240 262 272 301 422 510 617 688 757 757 1111 1252 1263 1306 1433 1471 1502 1518 1552 1858 1895 2045 2135 2143 2179 2426 2459 2810 2833 2859 2893 2931 3105 3110 3220 32
37 3377 3396 3638 3683 3771 3932 3995 4103 4142 4458 4469 4496 4542 4699 4781 4872 4887 5131 5356 5426 5451 5458 5719 5926 6090 6334 6370 6405 6414 6488 6600 6716 6827 6892 7386 7
515 7547 7620 7662 7676 7744 7848 7864 7930 7942 7991 8271 8286 8293 8343 8401 8405 8542 8589 8945 8997 9133 9200 9299 9384 9676 9871 9995
99988244 99988293 99988390 99988427 99988441 99988498 99988507 99988568 99988580 99988608 99988825 99989098 99989125 99989138 99989363 99989383 99989619 99989671 99989793
99989879 99989928 99990241 99990250 99990281 99990301 99990327 99990528 99990878 99990895 99991007 99991110 99991221 99991359 99991385 99991518 99991585 99992061 99992096 99992264
99992271 99992487 99992546 99992667 99992673 99992814 99992913 99992937 99993002 99993070 99993250 99993425 99993436 99993439 99993512 99993582 99993635 99993983 99994128 9999440
7 99994416 99994693 99994835 99995009 99995213 99995307 99995471 99995697 99995713 99995716 99995743 99995794 99995861 99996194 99996403 99996621 99996763 99996798 999973
54 99997468 99997670 99997722 99997741 99997744 99997841 99998004 99998052 99998397 99998523 99998774 99998854 99998990 99999103 99999181 99999231 99999371 99999543 99999682 99999
762 99999946
```

Heap Sort:

```
runtime : 0.2
extra memory allocated : 0
```

EXPLORER ... PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS zsh + ×

✓ COMPARESORTINGALG... 54 99997468 99997670 99997722 99997741 99997744 99997841 99998004 99998052 99998397 99998523 99998774 99998854 99998990 99999103 99999181 99999231 99999371 99999543 99999682 9999973

▼ .vscode ● 762 9999946

⌚ launch.json U Insertion Sort:  
runtime : 287.2  
extra memory allocated : 0  
Data:  
173 240 262 272 301 422 510 617 688 757 757 1111 1252 1263 1306 1433 1471 1502 1518 1552 1858 1895 2045 2135 2143 2179 2426 2459 2810 2833 2859 2893 2931 3105 3110 3220 32

► Resources ● 37 3377 3396 3638 3683 3771 3932 3995 4103 4142 4458 4469 4496 4542 4699 4781 4872 4887 5131 5356 5426 5451 5458 5719 5926 6090 6334 6370 6405 6414 6488 6600 6716 6827 6892 7386 7

☰ Info.plist U 515 7547 7620 7662 7676 7744 7848 7864 7930 7942 7991 8271 8286 8293 8343 8401 8405 8542 8589 8945 8997 9133 9200 9299 9384 9676 9871 995  
99988244 99988293 99988390 99988427 99988441 99988498 99988507 99988568 99988580 99988608 99988825 99989098 99989125 99989138 99989363 99989383 99989619 99989671 99989793

► main.dSYM ● 99989879 99989928 99990241 99990250 99990281 99990301 99990327 99990528 99990878 99990895 99991007 99991110 99991221 99991359 99991385 99991518 99991585 99992061 99992096 99992264

☰ a.out U 99992271 99992487 99992546 99992667 99992673 99992814 99992913 99992937 99993002 99993070 99993250 99993425 99993436 99993439 99993512 99993582 99993635 99993983 99994128 9999440  
7 99994416 99994693 99994835 99995009 99995213 99995307 99995471 99995671 99995697 99995713 99995716 99995743 99995794 99995861 99996194 99996403 99996621 99996763 99996798 999973

☰ compareSortAl... U 54 99997468 99997670 99997722 99997741 99997744 99997841 99998004 99998052 99998397 99998523 99998774 99998854 99998990 99999103 99999181 99999231 99999371 99999543 99999682 9999973  
762 9999946

☰ input1.txt

☰ input2.txt Bubble Sort:  
runtime : 1979.5  
extra memory allocated : 0  
Data:  
173 240 262 272 301 422 510 617 688 757 757 1111 1252 1263 1306 1433 1471 1502 1518 1552 1858 1895 2045 2135 2143 2179 2426 2459 2810 2833 2859 2893 2931 3105 3110 3220 32

C main.c U 37 3377 3396 3638 3683 3771 3932 3995 4103 4142 4458 4469 4496 4542 4699 4781 4872 4887 5131 5356 5426 5451 5458 5719 5926 6090 6334 6370 6405 6414 6488 6600 6716 6827 6892 7386 7  
515 7547 7620 7662 7676 7744 7848 7864 7930 7942 7991 8271 8286 8293 8343 8401 8405 8542 8589 8945 8997 9133 9200 9299 9384 9676 9871 995  
99988244 99988293 99988390 99988427 99988441 99988498 99988507 99988568 99988580 99988608 99988825 99989098 99989125 99989138 99989363 99989383 99989619 99989671 99989793

☰ output1.txt U 99989879 99989928 99990241 99990250 99990281 99990301 99990327 99990528 99990878 99990895 99991007 99991110 99991221 99991359 99991385 99991518 99991585 99992061 99992096 99992264

☰ output2.txt U 99992271 99992487 99992546 99992667 99992673 99992814 99992913 99992937 99993002 99993070 99993250 99993425 99993436 99993439 99993512 99993582 99993635 99993983 99994128 9999440  
7 99994416 99994693 99994835 99995009 99995213 99995307 99995471 99995671 99995697 99995713 99995716 99995743 99995794 99995861 99996194 99996403 99996621 99996763 99996798 999973

M README.md 54 99997468 99997670 99997722 99997741 99997744 99997841 99998004 99998052 99998397 99998523 99998774 99998854 99998990 99999103 99999181 99999231 99999371 99999543 99999682 9999973  
762 9999946

Merge Sort:  
runtime : 0.1  
extra memory allocated : 0  
Data:  
173 240 262 272 301 422 510 617 688 757 757 1111 1252 1263 1306 1433 1471 1502 1518 1552 1858 1895 2045 2135 2143 2179 2426 2459 2810 2833 2859 2893 2931 3105 3110 3220 32

37 3377 3396 3638 3683 3771 3932 3995 4103 4142 4458 4469 4496 4542 4699 4781 4872 4887 5131 5356 5426 5451 5458 5719 5926 6090 6334 6370 6405 6414 6488 6600 6716 6827 6892 7386 7  
515 7547 7620 7662 7676 7744 7848 7864 7930 7942 7991 8271 8286 8293 8343 8401 8405 8542 8589 8945 8997 9133 9200 9299 9384 9676 9871 995  
99988244 99988293 99988390 99988427 99988441 99988498 99988507 99988568 99988580 99988608 99988825 99989098 99989125 99989138 99989363 99989383 99989619 99989671 99989793

99989879 99989928 99990241 99990250 99990281 99990301 99990327 99990528 99990878 99990895 99991007 99991110 99991221 99991359 99991385 99991518 99991585 99992061 99992096 99992264

99992271 99992487 99992546 99992667 99992673 99992814 99992913 99992937 99993002 99993070 99993250 99993425 99993436 99993439 99993512 99993582 99993635 99993983 99994128 9999440  
7 99994416 99994693 99994835 99995009 99995213 99995307 99995471 99995671 99995697 99995713 99995716 99995743 99995794 99995861 99996194 99996403 99996621 99996763 99996798 999973

54 99997468 99997670 99997722 99997741 99997744 99997841 99998004 99998052 99998397 99998523 99998774 99998854 99998990 99999103 99999181 99999231 99999371 99999543 99999682 9999973  
762 9999946

Heap Sort:  
runtime : 0.2  
extra memory allocated : 0  
Data:  
173 240 262 272 301 422 510 617 688 757 757 1111 1252 1263 1306 1433 1471 1502 1518 1552 1858 1895 2045 2135 2143 2179 2426 2459 2810 2833 2859 2893 2931 3105 3110 3220 32

37 3377 3396 3638 3683 3771 3932 3995 4103 4142 4458 4469 4496 4542 4699 4781 4872 4887 5131 5356 5426 5451 5458 5719 5926 6090 6334 6370 6405 6414 6488 6600 6716 6827 6892 7386 7  
515 7547 7620 7662 7676 7744 7848 7864 7930 7942 7991 8271 8286 8293 8343 8401 8405 8542 8589 8945 8997 9133 9200 9299 9384 9676 9871 995  
99988244 99988293 99988390 99988427 99988441 99988498 99988507 99988568 99988580 99988608 99988825 99989098 99989125 99989138 99989363 99989383 99989619 99989671 99989793

99989879 99989928 99990241 99990250 99990281 99990301 99990327 99990528 99990878 99990895 99991007 99991110 99991221 99991359 99991385 99991518 99991585 99992061 99992096 99992264

99992271 99992487 99992546 99992667 99992673 99992814 99992913 99992937 99993002 99993070 99993250 99993425 99993436 99993439 99993512 99993582 99993635 99993983 99994128 9999440  
7 99994416 99994693 99994835 99995009 99995213 99995307 99995471 99995671 99995697 99995713 99995716 99995743 99995794 99995861 99996194 99996403 99996621 99996763 99996798 999973

54 99997468 99997670 99997722 99997741 99997744 99997841 99998004 99998052 99998397 99998523 99998774 99998854 99998990 99999103 99999181 99999231 99999371 99999543 99999682 9999973  
762 9999946