**Analysis**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Algorithm** | **p** | **q** | **n** | **m** | **t** | **Memory utilization** | **Avg. turnaround time (s)** |
| **First-fit** | 1000 | 200 | 10 | 10 | 10 | 79.000000 % | 596.082281 sec |
| **Best-fit** | 1000 | 200 | 10 | 10 | 10 | 98.000000 % | 604.676196 sec |
| **Next-fit** | 1000 | 200 | 10 | 10 | 10 | 97.000000 % | 598.044958 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 2000 | 200 | 10 | 10 | 10 | 57.500000 % | 423.457879 sec |
| **Best-fit** | 2000 | 200 | 10 | 10 | 10 | 87.000000 % | 422.641854 sec |
| **Next-fit** | 2000 | 200 | 10 | 10 | 10 | 17.000000 % | 410.013098 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 3000 | 200 | 10 | 10 | 10 | 32.333333 % | 261.245079 sec |
| **Best-fit** | 3000 | 200 | 10 | 10 | 10 | 25.666667 % | 254.281038 sec |
| **Next-fit** | 3000 | 200 | 10 | 10 | 10 | 40.333333 % | 261.902787 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 4000 | 200 | 10 | 10 | 10 | 16.000000 % | 121.159075 sec |
| **Best-fit** | 4000 | 200 | 10 | 10 | 10 | 7.750000 % | 124.860531 sec |
| **Next-fit** | 4000 | 200 | 10 | 10 | 10 | 26.750000 % | 129.540083 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 5000 | 200 | 10 | 10 | 10 | 37.000000 % | 0.356387 sec |
| **Best-fit** | 5000 | 200 | 10 | 10 | 10 | 51.000000 % | 0.269213 sec |
| **Next-fit** | 5000 | 200 | 10 | 10 | 10 | 64.400000 % | 0.481361 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 6000 | 200 | 10 | 10 | 10 | 69.000000 % | 0.062617 sec |
| **Best-fit** | 6000 | 200 | 10 | 10 | 10 | 70.833333 % | 0.063100 sec |
| **Next-fit** | 6000 | 200 | 10 | 10 | 10 | 76.000000 % | 0.062528 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 7000 | 200 | 10 | 10 | 10 | 66.857143 % | 0.062787 sec |
| **Best-fit** | 7000 | 200 | 10 | 10 | 10 | 66.571429 % | 0.034927 sec |
| **Next-fit** | 7000 | 200 | 10 | 10 | 10 | 65.714286 % | 0.034883 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 8000 | 200 | 10 | 10 | 10 | 58.750000 % | 0.055421 sec |
| **Best-fit** | 8000 | 200 | 10 | 10 | 10 | 56.250000 % | 0.063597 sec |
| **Next-fit** | 8000 | 200 | 10 | 10 | 10 | 58.125000 % | 0.061370 sec |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Algorithm** | **p** | **q** | **n** | **m** | **t** | **Memory utilization** | **Avg. turnaround time (s)** |
| **First-fit** | 1000 | 200 | 10 | 10 | 10 | 32.000000 % | 665.616026 sec |
| **Best-fit** | 1000 | 200 | 10 | 10 | 10 | 30.000000 % | 663.458762 sec |
| **Next-fit** | 1000 | 200 | 10 | 10 | 10 | 29.000000 % | 660.685412 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 12 | 10 | 10 | 26.000000 % | 676.820369 sec |
| **Best-fit** | 1000 | 200 | 12 | 10 | 10 | 25.000000 % | 666.596772 sec |
| **Next-fit** | 1000 | 200 | 12 | 10 | 10 | 30.000000 % | 663.613182 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 14 | 10 | 10 | 25.000000 % | 673.083090 sec |
| **Best-fit** | 1000 | 200 | 14 | 10 | 10 | 26.000000 % | 662.232974 sec |
| **Next-fit** | 1000 | 200 | 14 | 10 | 10 | 28.000000 % | 653.912942 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 16 | 10 | 10 | 29.000000 % | 634.361197 sec |
| **Best-fit** | 1000 | 200 | 16 | 10 | 10 | 26.000000 % | 631.297930 sec |
| **Next-fit** | 1000 | 200 | 16 | 10 | 10 | 28.000000 % | 627.618992 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 18 | 10 | 10 | 29.000000 % | 624.544915 sec |
| **Best-fit** | 1000 | 200 | 18 | 10 | 10 | 26.000000 % | 618.765054 sec |
| **Next-fit** | 1000 | 200 | 18 | 10 | 10 | 29.000000 % | 616.849115 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 20 | 10 | 10 | 29.000000 % | 619.197257 sec |
| **Best-fit** | 1000 | 200 | 20 | 10 | 10 | 26.000000 % | 609.441688 sec |
| **Next-fit** | 1000 | 200 | 20 | 10 | 10 | 24.000000 % | 599.837543 sec |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Algorithm** | **p** | **q** | **n** | **m** | **t** | **Memory utilization** | **Avg. turnaround time (s)** |
| **First-fit** | 1000 | 200 | 10 | 10 | 10 | 98.000000 % | 740.250165 sec |
| **Best-fit** | 1000 | 200 | 10 | 10 | 10 | 99.000000 % | 741.596646 sec |
| **Next-fit** | 1000 | 200 | 10 | 10 | 10 | 97.000000 % | 739.500662 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 10 | 12 | 10 | 93.000000 % | 738.134990 sec |
| **Best-fit** | 1000 | 200 | 10 | 12 | 10 | 100.000000 % | 739.832323 sec |
| **Next-fit** | 1000 | 200 | 10 | 12 | 10 | 99.000000 % | 739.572545 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 10 | 14 | 10 | 99.000000 % | 784.988997 sec |
| **Best-fit** | 1000 | 200 | 10 | 14 | 10 | 94.000000 % | 782.517938 sec |
| **Next-fit** | 1000 | 200 | 10 | 14 | 10 | 95.000000 % | 784.388791 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 10 | 16 | 10 | 92.000000 % | 786.255992 sec |
| **Best-fit** | 1000 | 200 | 10 | 16 | 10 | 94.000000 % | 783.985031 sec |
| **Next-fit** | 1000 | 200 | 10 | 16 | 10 | 94.000000 % | 783.307676 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 10 | 18 | 10 | 96.000000 % | 801.790528 sec |
| **Best-fit** | 1000 | 200 | 10 | 18 | 10 | 88.000000 % | 798.430032 sec |
| **Next-fit** | 1000 | 200 | 10 | 18 | 10 | 100.000000 % | 803.273016 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 10 | 20 | 10 | 83.000000 % | 825.764268 sec |
| **Best-fit** | 1000 | 200 | 10 | 20 | 10 | 84.000000 % | 826.008696 sec |
| **Next-fit** | 1000 | 200 | 10 | 20 | 10 | 90.000000 % | 829.012506 sec |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Algorithm** | **p** | **q** | **n** | **m** | **t** | **Memory utilization** | **Avg. turnaround time (s)** |
| **First-fit** | 1000 | 200 | 10 | 10 | 10 | 97.000000 % | 739.939519 sec |
| **Best-fit** | 1000 | 200 | 10 | 10 | 10 | 100.000000 % | 739.615286 sec |
| **Next-fit** | 1000 | 200 | 10 | 10 | 10 | 97.000000 % | 738.601836 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 10 | 10 | 12 | 97.000000 % | 763.769060 sec |
| **Best-fit** | 1000 | 200 | 10 | 10 | 12 | 97.000000 % | 763.583878 sec |
| **Next-fit** | 1000 | 200 | 10 | 10 | 12 | 99.000000 % | 765.452193 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 10 | 10 | 14 | 100.000000 % | 776.621084 sec |
| **Best-fit** | 1000 | 200 | 10 | 10 | 14 | 98.000000 % | 776.268974 sec |
| **Next-fit** | 1000 | 200 | 10 | 10 | 14 | 98.000000 % | 777.291228 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 10 | 10 | 16 | 98.000000 % | 795.837248 sec |
| **Best-fit** | 1000 | 200 | 10 | 10 | 16 | 99.000000 % | 796.460455 sec |
| **Next-fit** | 1000 | 200 | 10 | 10 | 16 | 100.000000 % | 796.902159 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 10 | 10 | 18 | 100.000000 % | 802.760733 sec |
| **Best-fit** | 1000 | 200 | 10 | 10 | 18 | 96.000000 % | 803.651734 sec |
| **Next-fit** | 1000 | 200 | 10 | 10 | 18 | 96.000000 % | 804.320305 sec |
|  |  |  |  |  |  |  |  |
| **First-fit** | 1000 | 200 | 10 | 10 | 20 | 100.000000 % | 821.028578 sec |
| **Best-fit** | 1000 | 200 | 10 | 10 | 20 | 100.000000 % | 820.926207 sec |
| **Next-fit** | 1000 | 200 | 10 | 10 | 20 | 94.000000 % | 817.715245 sec |

Though the observations show some discrepancies, making it difficult to make a clear-cut choice. But overall, **First-fit strategy** seems to be an ideal choicefor memory allocation. However, as the simulation involves randomness, consequently the measure of effectiveness amongst the performances of the algorithms is affected by it. In real scenario, the choice would also be influenced by compaction techniques.