

93) Container Loading

CODE:

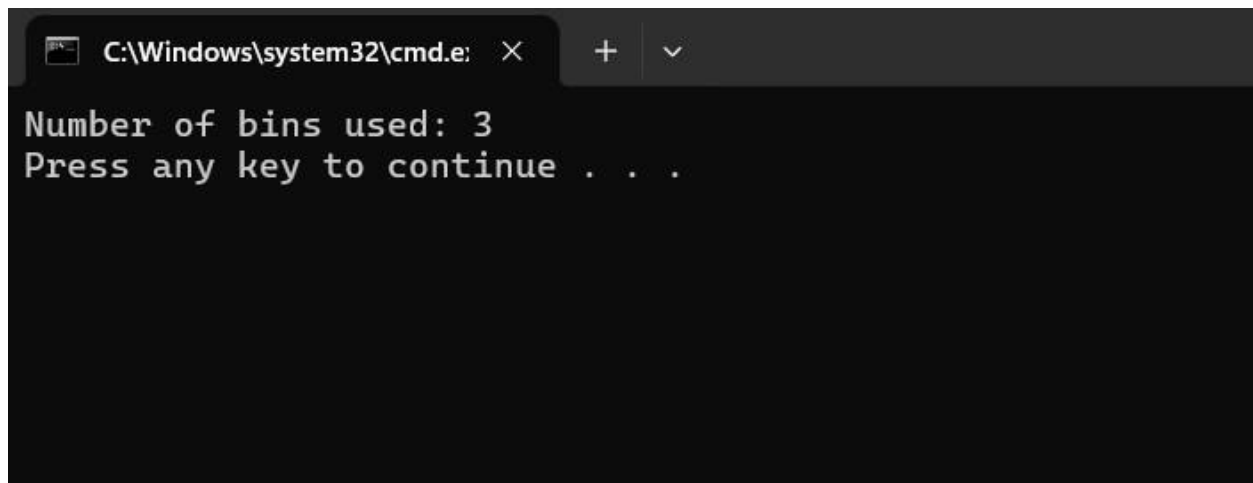
```
def first_fit_decreasing(items, bin_capacity):
    items.sort(reverse=True)
    bins = []
    bins.append(bin_capacity)
    for item in items:
        placed = False
        for i in range(len(bins)):
            if bins[i] >= item:
                bins[i] -= item
                placed = True
                break
        if not placed:
            new_bin = bin_capacity - item
            bins.append(new_bin)

    return len(bins)

if __name__ == "__main__":
    items = [4, 8, 1, 4, 2, 1, 3, 6]
    bin_capacity = 10

    num_bins = first_fit_decreasing(items, bin_capacity)
    print(f"Number of bins used: {num_bins}")
```

OUTPUT:

A screenshot of a Windows command prompt window. The title bar shows the path 'C:\Windows\system32\cmd.e' with a close button. The window content displays the output of the program: 'Number of bins used: 3' followed by 'Press any key to continue . . .'. The text is in a light green monospace font on a black background.

TIME COMPLEXITY : $O(n \log n)$