```
package a9;

import java.util.Scanner;


public class MemoryAllocation {


  // Best-Fit Method
  static void bestFit(int blockSize[], int m, int processSize[], int n) {
    int allocation[] = new int[n]; // Block allocation for each process


    // Initially no block is assigned to any process
    for (int i = 0; i < allocation.length; i++)
      allocation[i] = -1;


    // Find the best fit block for each process
    for (int i = 0; i < n; i++) {
      int bestIdx = -1;
      for (int j = 0; j < m; j++) {
        if (blockSize[j] >= processSize[i]) {
          if (bestIdx == -1 || blockSize[bestIdx] > blockSize[j])
            bestIdx = j;
        }
      }
      if (bestIdx != -1) {
        allocation[i] = bestIdx;
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            blockSize[bestIdx] -= processSize[i];
        }
    }

    System.out.println("\nBest Fit Allocation:");
    printAllocation(processSize, allocation, n);
}

// First-Fit Method
static void firstFit(int blockSize[], int m, int processSize[], int n) {
    int allocation[] = new int[n]; // Block allocation for each process

    // Initially no block is assigned to any process
    for (int i = 0; i < allocation.length; i++)
        allocation[i] = -1;

    // Find the first fit block for each process
    for (int i = 0; i < n; i++) {
        for (int j = 0; j < m; j++) {
            if (blockSize[j] >= processSize[i]) {
                allocation[i] = j;
                blockSize[j] -= processSize[i];
                break;
            }
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        }
    }

    System.out.println("\nFirst Fit Allocation:");
    printAllocation(processSize, allocation, n);
}

// Method to print the allocation results
static void printAllocation(int processSize[], int allocation[], int n) {
    System.out.println("Process No.\tProcess Size\tBlock No.");
    for (int i = 0; i < n; i++) {
        System.out.print("   " + (i + 1) + "\t\t" + processSize[i] + "\t\t");
        if (allocation[i] != -1)
            System.out.println(allocation[i] + 1);
        else
            System.out.println("Not Allocated");
    }
}

// Main method to select and execute chosen allocation method
public static void main(String[] args) {
    Scanner scanner = new Scanner(System.in);
    int blockSize[] = {100, 500, 200, 300, 600};
    int processSize[] = {212, 417, 112, 426};
```

```
        int m = blockSize.length;
        int n = processSize.length;

        System.out.println("Select the memory allocation method:");
        System.out.println("1. Best Fit");
        System.out.println("2. First Fit");
        int choice = scanner.nextInt();

        // Duplicate the original block sizes to avoid reusing modified blocks
        int[] blockSizeCopy = blockSize.clone();

        if (choice == 1) {
            bestFit(blockSizeCopy, m, processSize, n);
        } else if (choice == 2) {
            firstFit(blockSizeCopy, m, processSize, n);
        } else {
            System.out.println("Invalid choice!");
        }
        scanner.close();
    }
}
```