

# Operating System Lab

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Section: B2

First Fit

Process 0 in Block 0

Process 1 in Block 2

Process 2 in Block 1

Fragmentation 134

Worst Fit

Process 0 in Block 2

Process 2 in Block 0

Fragmentation 189

Best Fit

Process 0 in Block 1

Process 1 in Block 2

Process 2 in Block 0

Fragmentation 134

```
processes=(12 100 5)
```

```
blocks=(56 45 150)
```

```
blocked=(0 0 0)
```

```
fragma=0
```

```
first_fit() {
    for p in "${!processes[@]}; do
        for b in "${!blocks[@]}; do
            if (( ${blocked[$b]} == 0 && ${processes[$p]} <= ${blocks[$b]} ));
then
                blocked[$b]=${processes[$p]}
                echo "Process " $p "in Block " $b
                fragma=$(( $fragma + ${blocks[$b]} - ${processes[$p]} ))
                break
            fi
        done
    done
}
```

```

worst_fit() {
    idx=0
    prev=-1

    for p in "${!processes[@]"; do
        idx=0
        for b in "${!blocks[@]"; do
            if (( ${blocked[$b]} == 0 && ${processes[$p]} <= ${blocks[$b]} &&
${blocks[$b]} > prev )); then
                idx=$b
                prev=${blocks[$b]}
                # echo $prev
            fi
        done

        if (($prev != -1)); then
            blocked[$idx]=${processes[$p]}
            echo "Process " $p "in Block" $idx
            prev=-1
            fragma=$(( $fragma + ${blocks[$idx]} - ${processes[$p]} ))
        fi
    done
}

best_fit() {
    idx=0
    prev=1000000000

    for p in "${!processes[@]"; do
        idx=0
        for b in "${!blocks[@]"; do
            if (( ${blocked[$b]} == 0 && ${processes[$p]} <= ${blocks[$b]} &&
${blocks[$b]} - ${processes[$p]} < prev )); then
                idx=$b
                prev=${blocks[$b]}
            fi
        done

        if (($prev != 1000000000)); then
            blocked[$idx]=${processes[$p]}
            prev=1000000000
            echo "Process " $p "in Block" $idx
            fragma=$(( $fragma + ${blocks[$idx]} - ${processes[$p]} ))
            # echo "$fragma"
        fi
    done
}
\begin{lstlisting}[language=Java,caption={Java version}]
public class HelloWorld {
    // Here's the main class
    public static void main(String[] args) {
        System.out.println("Hello, world!");
    }
}
\end{lstlisting}

```

```
print_blocked() {
    for i in "${!blocked[@]}"; do
        echo ${blocked[$i]}
    done
}

reset() {
    for i in "${!blocked[@]}"; do
        blocked[$i]=0
    done
    fragma=0
}

main() {
    echo "First Fit"
    first_fit
    # print_blocked
    echo "Fragmantation " $fragma
    reset

    echo ""
    echo "Worst Fit"
    worst_fit
    # print_blocked
    echo "Fragmantation " $fragma
    reset

    echo ""
    echo "Best Fit"
    best_fit
    # print_blocked
    echo "Fragmantation " $fragma
    reset
}

main
```