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Programiz C Online Compiler

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main.c

```
1 #include <stdio.h>
2
3 int main() {
4     int n, i, j, pos, temp;
5     int burst_time[20], process[20], waiting_time[20];
6     turnaround_time[20];
7     float total_waiting_time = 0, total_turnaround_time = 0;
8
9     printf("Enter the number of processes: ");
10    scanf("%d", &n);
11
12    printf("\nEnter Burst Time for each process:\n");
13    for(i = 0; i < n; i++) {
14        printf("Process %d: ", i + 1);
15        scanf("%d", &burst_time[i]);
16        process[i] = i + 1; // Process IDs
17
18    // Sorting burst times in ascending order using selection sort
19    }
```

Run Output Clear

Enter the number of processes: 2

Enter Burst Time for each process:

Process 1: 4
Process 2: 12

Process	Burst Time	Waiting Time	Turnaround Time
P1	4	0	4
P2	12	4	16

Average Waiting Time: 2.00
Average Turnaround Time: 10.00

== Code Execution Successful ==

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main.c

```
1 #include <stdio.h>
2
3 void bestFit(int blockSize[], int m, int processSize[], int n) {
4     int allocation[n];
5     for (int i = 0; i < n; i++) {
6         allocation[i] = -1; // Initially, no process is allocated
7     }
8
9     for (int i = 0; i < n; i++) {
10        int bestIdx = -1;
11        for (int j = 0; j < m; j++) {
12            if (blockSize[j] >= processSize[i]) {
13                if (bestIdx == -1 || blockSize[j] < blockSize[bestIdx]) {
14                    bestIdx = j;
15                }
16            }
17        }
18        if (bestIdx != -1) {
19            allocation[i] = bestIdx;
20            blockSize[bestIdx] -= processSize[i];
21        }
22    }
23 }
```

Run Output

Process No.	Process Size	Block No.	Block Size
1	212	4	88
2	417	2	83
3	112	3	88
4	426	5	174

==== Code Execution Successful ===

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main.c

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <pthread.h>
4
5 void* print_message(void* msg) {
6     printf("%s\n", (char*)msg);
7     pthread_exit(NULL); // Explicitly terminate the thread
8 }
9
10 int main() {
11     pthread_t thread1, thread2;
12     const char* message1 = "Hello from Thread 1!";
13     const char* message2 = "Hello from Thread 2!";
14
15     // Create thread1
16     if (pthread_create(&thread1, NULL, print_message, (void*)message1) != 0)
17     {
18         perror("Failed to create thread1");
19         return EXIT_FAILURE;
20     }
21     // Create thread2
22 }
```

Output

```
Hello from Thread 1!
Hello from Thread 2!
thread1 and thread2 are different threads.

== Code Execution Successful ==
```

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main.c

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <string.h>
4
5 #define MAX_BLOCKS 20
6 #define MAX_FILES 5
7
8 typedef struct {
9     char filename[20];
10    int start_block;
11    int length;
12 } File;
13
14 int disk[MAX_BLOCKS]; // 0: free, 1: occupied
15 File files[MAX_FILES];
16
17 void initialize_disk() {
18     for (int i = 0; i < MAX_BLOCKS; i++) {
19         disk[i] = 0; // All blocks are initially free
20     }
}
```

Run Output Clear

Menu:

1. Allocate File
2. Deallocate File
3. Display Disk Status
4. Display Allocated Files
5. Exit

Enter your choice: 1
Enter filename: pdf
Enter length (number of blocks): 23
ERROR!
Error: Not enough contiguous space available.

Menu:

1. Allocate File
2. Deallocate File
3. Display Disk Status
4. Display Allocated Files
5. Exit

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main.c

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 void cscan(int arr[], int n, int head, int direction) {
5     int left[100], right[100];
6     int left_count = 0, right_count = 0;
7     int distance = 0, cur_track = 0;
8
9     // Divide the requests into left and right of the head.
10    for (int i = 0; i < n; i++) {
11        if (arr[i] < head)
12            left[left_count++] = arr[i];
13        else
14            right[right_count++] = arr[i];
15    }
16
17    // Sort the left and right arrays.
18    for (int i = 0; i < left_count - 1; i++)
19        for (int j = i + 1; j < left_count; j++)
20            if (left[i] > left[j])
21                swap(left[i], left[j]);
22
23    // Print the sorted array.
24    for (int i = 0; i < n; i++)
25        printf("%d ", left[i]);
26
27    // Calculate the total distance.
28    for (int i = 0; i < n; i++) {
29        distance += abs(head - arr[i]);
30        if (direction == 1)
31            cur_track += arr[i];
32        else
33            cur_track -= arr[i];
34    }
35
36    // Print the total distance.
37    printf("Total distance: %d\n", distance);
38}
```

Total distance: 331
== Code Execution Successful ==

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main.c

```
11  char dirName[NAME_LEN];
12  char fileNames[MAX_FILES][NAME_LEN];
13  int fileCount;
14 } Directory;
15
16 Directory directories[MAX_DIRS];
17 int dirCount = 0;
18
19 // Function to create a new directory
20 void createDirectory() {
21     if (dirCount >= MAX_DIRS) {
22         printf("Maximum directory limit reached.\n");
23         return;
24     }
25     printf("Enter directory name: ");
26     scanf("%s", directories[dirCount].dirName);
27     directories[dirCount].fileCount = 0;
28     dirCount++;
29     printf("Directory created successfully.\n");
30 }
```

Run

Output

Clear

```
Two-Level Directory Structure Simulation
1. Create Directory
2. Create File
3. Delete File
4. Search File
5. Display Structure
6. Exit
Enter your choice: 1
Enter directory name: pdf
Directory created successfully.

Two-Level Directory Structure Simulation
1. Create Directory
2. Create File
3. Delete File
4. Search File
5. Display Structure
6. Exit
```

Type here to search

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main.c

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <string.h>
4
5 #define MAX_BLOCKS 20
6 #define MAX_FILES 5
7
8 typedef struct Block {
9     int next_block; // Points to the next block in the file, -1 if
10    it's the last block
11 }
12 typedef struct {
13     char filename[20];
14     int start_block; // Points to the first block of the file
15 } File;
16
17 Block disk[MAX_BLOCKS];
18 File files[MAX_FILES];
19
```

Run Output Clear

Menu:

1. Create File
2. Delete File
3. Display Disk Status
4. Display Allocated Files
5. Exit

Enter your choice: 1
Enter filename: pdf
Enter length (number of blocks): 12
File 'pdf' created starting at block 0 with length 12.

Menu:

1. Create File
2. Delete File
3. Display Disk Status
4. Display Allocated Files
5. Exit

Enter your choice: 2

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main.c

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <pthread.h>
4 #include <semaphore.h>
5
6 #define BUFFER_SIZE 5
7 #define NUM_ITEMS 10
8
9 sem_t empty, full;
10 pthread_mutex_t mutex;
11 int buffer[BUFFER_SIZE];
12 int in = 0, out = 0;
13
14 void* producer(void* arg) {
15     for (int i = 0; i < NUM_ITEMS; i++) {
16         sem_wait(&empty);
17         pthread_mutex_lock(&mutex);
18
19         buffer[in] = i;
20         printf("Produced: %d\n", i);
21         in = (in + 1) % BUFFER_SIZE;
22     }
23 }
```

Run Output

Produced: 0
Produced: 1
Produced: 2
Produced: 3
Produced: 4
Consumed: 0
Consumed: 1
Consumed: 2
Consumed: 3
Consumed: 4
Produced: 5
Produced: 6
Produced: 7
Produced: 8
Produced: 9
Consumed: 5
Consumed: 6
Consumed: 7
Consumed: 8
Consumed: 9

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main.c

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main() {
5     FILE *file;
6     const char *filename = "employee_data.txt";
7
8     // Create and write to the file
9     file = fopen(filename, "w");
10    if (file == NULL) {
11        perror("Error opening file for writing");
12        return EXIT_FAILURE;
13    }
14    fprintf(file, "ID: 101, Name: John Doe, Position: Software Engineer\n");
15    fprintf(file, "ID: 102, Name: Jane Smith, Position: Data Scientist\n");
16    fclose(file);
17    printf("Data written to '%s'.\n", filename);
18
19    // Read from the file
20    file = fopen(filename, "r");
21    if (file == NULL) {
22        perror("Error opening file for reading");
23    }
24    else {
25        // Read code here
26    }
27}
```

Error opening file for writing: Permission denied
==== Code Exited With Errors ===

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main.c

```
1 #include <stdio.h>
2
3 void worstFit(int blockSize[], int m, int processSize[], int n) {
4     int allocation[n];
5     for (int i = 0; i < n; i++) {
6         allocation[i] = -1; // Initially, no process is allocated
7     }
8
9     for (int i = 0; i < n; i++) {
10        int maxIndex = -1;
11        for (int j = 0; j < m; j++) {
12            if (blockSize[j] >= processSize[i]) {
13                if (maxIndex == -1 || blockSize[j] > blockSize[maxIndex]) {
14                    maxIndex = j;
15                }
16            }
17        }
18        if (maxIndex != -1) {
19            allocation[i] = maxIndex;
20            blockSize[maxIndex] -= processSize[i];
21        }
22    }
23 }
```

Run Output

Process No.	Process Size	Block No.	Block Size
1	212	5	276
2	417	2	83
3	112	5	276
4	426	Not Allocated	

==== Code Execution Successful ===

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Hot weather ENG IN 5/23/2025

The screenshot shows a Windows desktop with a browser window open to the Programiz C Online Compiler. The code in the editor is as follows:

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <pthread.h>
4 #include <semaphore.h>
5 #include <unistd.h>
6
7 #define MAX_READERS 5
8 #define NUM_WRITERS 2
9
10 sem_t mutex; // Semaphore for mutual exclusion
11 sem_t writeBlock; // Semaphore to block writers when readers are active
12 int readCount = 0; // Number of readers currently reading
13
14 void* reader(void* arg) {
15     while (1) {
16         sem_wait(&mutex);
17         readCount++;
18         if (readCount == 1)
19             sem_wait(&writeBlock); // First reader blocks writers
20         sem_post(&mutex);
21
22         // Reading section
```

The output window shows the following sequence of events:

```
Reader 0 is reading...
Reader 2 is reading...
Reader 1 is reading...
Reader 3 is reading...
Reader 4 is reading...
Writer 0 is writing...
Writer 1 is writing...
Reader 0 is reading...
Reader 2 is reading...
Reader 3 is reading...
Reader 1 is reading...
Reader 4 is reading...
Writer 0 is writing...
Writer 1 is writing...
Reader 2 is reading...
Reader 3 is reading...
Reader 0 is reading...
Reader 1 is reading...
Reader 4 is reading...
Writer 0 is writing...
Writer 1 is writing...
Reader 3 is reading...
```

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main.c

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <pthread.h>
4
5 #define NUM_ITERATIONS 1000000
6
7 long long counter = 0; // Shared counter
8 pthread_mutex_t lock; // Mutex lock
9
10 void* increment(void* arg) {
11     for (int i = 0; i < NUM_ITERATIONS; i++) {
12         pthread_mutex_lock(&lock); // Acquire the lock
13         counter++;
14         pthread_mutex_unlock(&lock); // Release the lock
15     }
16     return NULL;
17 }
18
19 void* decrement(void* arg) {
20     for (int i = 0; i < NUM_ITERATIONS; i++) {
21         pthread_mutex_lock(&lock); // Acquire the lock
22         counter--;
23     }
}
```

Output

```
Final counter value: 0
== Code Execution Successful ==
```

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main.c

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <string.h>
4
5 #define FILENAME "employees.dat"
6
7 typedef struct {
8     int id;
9     char name[30];
10    int age;
11    float salary;
12 } Employee;
13
14 // Function to add a new employee record
15 void addEmployee() {
16     FILE *fp = fopen(FILENAME, "ab");
17     if (fp == NULL) {
18         perror("Error opening file");
19         return;
20     }
21
22     Employee emp;
```

Run Output

Employee Record System
1. Add Employee
2. View All Employees
3. Search Employee by ID
4. Update Employee
5. Delete Employee
6. Exit
Enter your choice: 2
Error opening file: No such file or directory

Employee Record System
1. Add Employee
2. View All Employees
3. Search Employee by ID
4. Update Employee
5. Delete Employee
6. Exit
Enter your choice: 3
Error opening file: No such file or directory

Employee Record System
1. Add Employee

Type here to search

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main.c

```
1 #include <stdio.h>
2 #include <string.h>
3
4 #define MAX_BLOCKS 25
5 #define MAX_PROCESSES 25
6
7 void firstFit(int blockSize[], int m, int processSize[], int n) {
8     int allocation[MAX_PROCESSES];
9     int tempBlockSize[MAX_BLOCKS];
10    memcpy(tempBlockSize, blockSize, m * sizeof(int));
11    memset(allocation, -1, sizeof(allocation));
12
13    for (int i = 0; i < n; i++) {
14        for (int j = 0; j < m; j++) {
15            if (tempBlockSize[j] >= processSize[i]) {
16                allocation[i] = j;
17                tempBlockSize[j] -= processSize[i];
18                break;
19            }
20        }
21    }
22}
```

Run Output

Enter the number of memory blocks: 2
Enter the size of each memory block:
Block 1: 12
Block 2: 15

Enter the number of processes: 2
Enter the size of each process:
Process 1: 17
Process 2: 21

First Fit Allocation:

Process No.	Process Size	Block No.
1	17	Not Allocated
2	21	Not Allocated

Best Fit Allocation:

Process No.	Process Size	Block No.
1	17	Not Allocated
2	21	Not Allocated

Type here to search 36°C Mostly sunny ENG IN 5:38 PM 5/23/2025

Screenshot of a web browser showing the Programiz Online C Compiler. The code editor contains a C program named main.c. The output window shows an error message: "ftok: No such file or directory" followed by "==== Code Exited With Errors ===".

The browser tabs are:

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The address bar shows: programiz.com/c-programming/online-compiler/

The sidebar on the left lists supported languages: Python, C, C++, Java, JavaScript, and TypeScript.

The bottom taskbar shows system icons for search, file, and various applications like File Explorer, Microsoft Word, and Google Chrome.

```
main.c
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <sys/ipc.h>
4 #include <sys/msg.h>
5 #include <unistd.h>
6 #include <string.h>
7 #include <sys/wait.h>
8 #include <errno.h>
9
10#define MAX_TEXT 100
11
12// Define message structure
13struct msg_buffer {
14    long msg_type;
15    char msg_text[MAX_TEXT];
16};
17
18int main() {
19    key_t key;
20    ----.
```

Output:
ftok: No such file or directory
==== Code Exited With Errors ===

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main.c

```
1 #include <stdio.h>
2
3 // Function to swap two integers
4 void swap(int *a, int *b) {
5     int temp = *a;
6     *a = *b;
7     *b = temp;
8 }
9
10 int main() {
11     int n;
12     printf("Enter the number of processes: ");
13     scanf("%d", &n);
14
15     int burst_time[n], priority[n], process_id[n];
16     int waiting_time[n], turnaround_time[n];
17     float total_waiting_time = 0, total_turnaround_time = 0;
18
19     // Input burst time and priority for each process
20 }
```

Run Output Clear

Enter the number of processes: 2
Enter Burst Time and Priority for Process 1: 14
3
Enter Burst Time and Priority for Process 2: 12 4

Process	Burst Time	Priority	Waiting Time	Turnaround Time
P1	14	3	0	14
P2	12	4	14	26

Average Waiting Time: 7.00
Average Turnaround Time: 20.00

== Code Execution Successful ==

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