EXPERIMENT- 10

REG- 16BIT0453
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CODE:

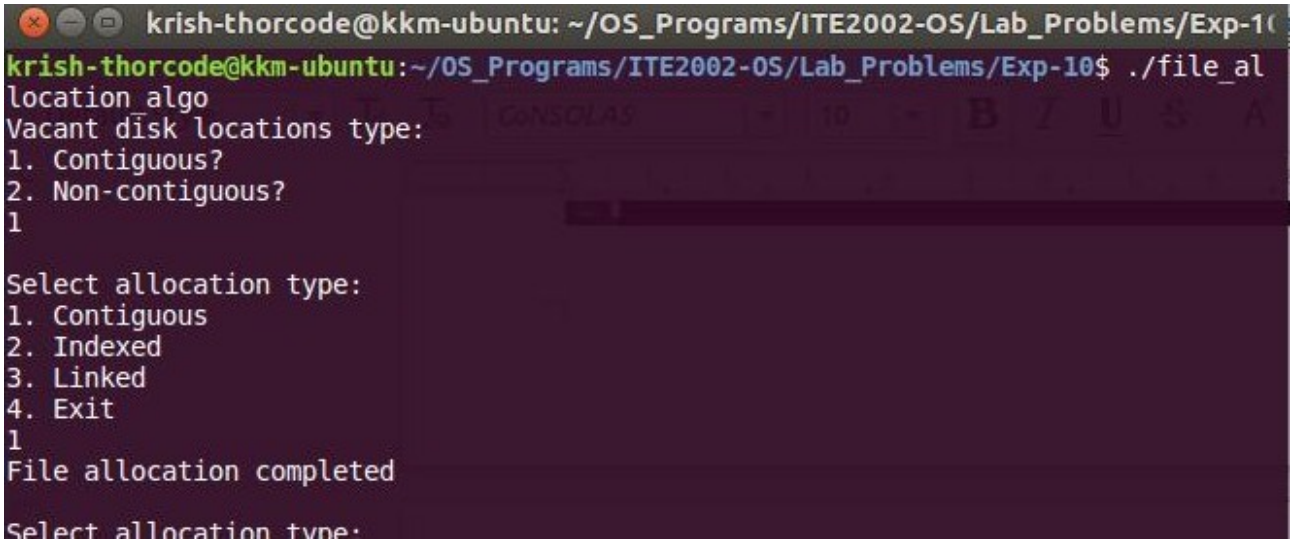
```
#include<stdio.h>
#include<stdlib.h>

// 1 disk unit each of MAX_DISK_DISK is equal to 512 Bytes
#define MAX_DISK 5
#define occupied 1
#define free 0


// 1 index location represents 1 block of disk = 512 Bytes
int disk[MAX_DISK];
int file_size = 2;


void contiguous()
{
      int i,flag[MAX_DISK];

      for(i=0;i<MAX_DISK;i++)
      {
            if(disk[i] == free)
            {
                  disk[i] = occupied;
                  flag[i] = 1; // indicates ith disk space got occupied
                  if(i != 0 && flag[i-1] == 1)
                  {
                        puts("File allocation completed");
                        return ;
                  }
                  continue;
            }
            if(disk[i] == occupied && flag[i-1] == 1)
            {
                  puts("Contiguous allocation not possible.");
                  return ;
            }
      }
}

void indexed()
{
      int file_index[2], i, j=0,limit = file_size;

      for(i=0;i<MAX_DISK && limit;i++)
      {
            if(disk[i] == free)
            {
                  disk[i] = occupied;
                  file_index[j++] = i;
                  limit--;
            }
      }
      if(j==2)
      {
```

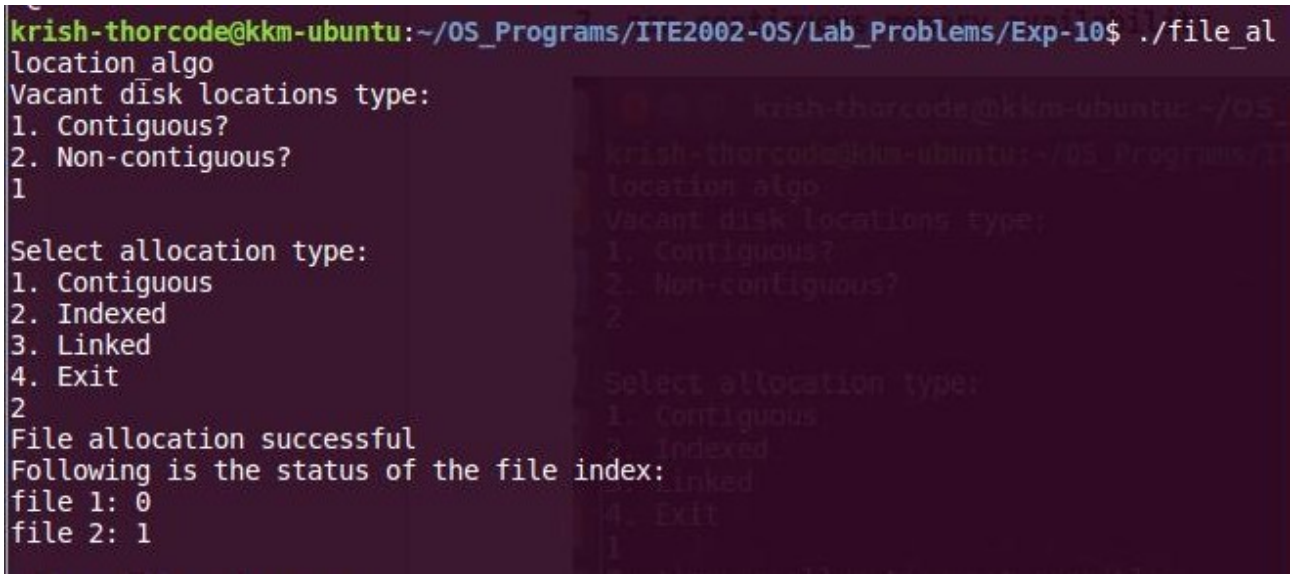
```
            puts("File allocation successful");
            printf("Following is the status of the file index:\nfile 1: %d\nfile
2: %d\n",file_index[0],file_index[1]);
            return ;
      }
      else
      {
            puts("Indexed allocation not possible.");
            return ;
      }


}

void linked()
{
      typedef struct linked_disk
      {
            int space;
            struct linked_disk* next;
      }LD;

      LD *head, *new;

      head = (LD*)malloc(sizeof(LD));
      head->space = occupied;
      head->next = NULL;

      new = (LD*)malloc(sizeof(LD));
      new->space = occupied;
      new->next = NULL;
      head->next = new;

      LD *temp;

      puts("File allocation completed.");
}

int main(int argc, char* argv[])
{
      int choice,i,j;

      puts("Vacant disk locations type:\n1. Contiguous?\n2. Non-contiguous?");
      scanf("%d",&choice);

      switch(choice)
      {
            case 1:
            for(i=0;i<MAX_DISK;i++)
                  disk[i] = free;
            break;

            case 2:
            for(i=0;i<MAX_DISK;i++)
            {
                  if(i%2 == 0)
                        disk[i] = occupied;
                  else
                        disk[i] = free;
            }

      }
```

```
	do
	{

		puts("");

		puts("Select allocation type:\n1. Contiguous\n2. Indexed\n3.
Linked\n4. Exit");
		scanf("%d",&choice);
		switch(choice)
		{
			case 1:
			contiguous();
			break;

			case 2:
			indexed();
			break;

			case 3:
			linked();
			break;

			case 4:
			exit(0);
		}
	}while(1);

	return 0;
}
```

OUTPUT:

1. contiguous memory availability

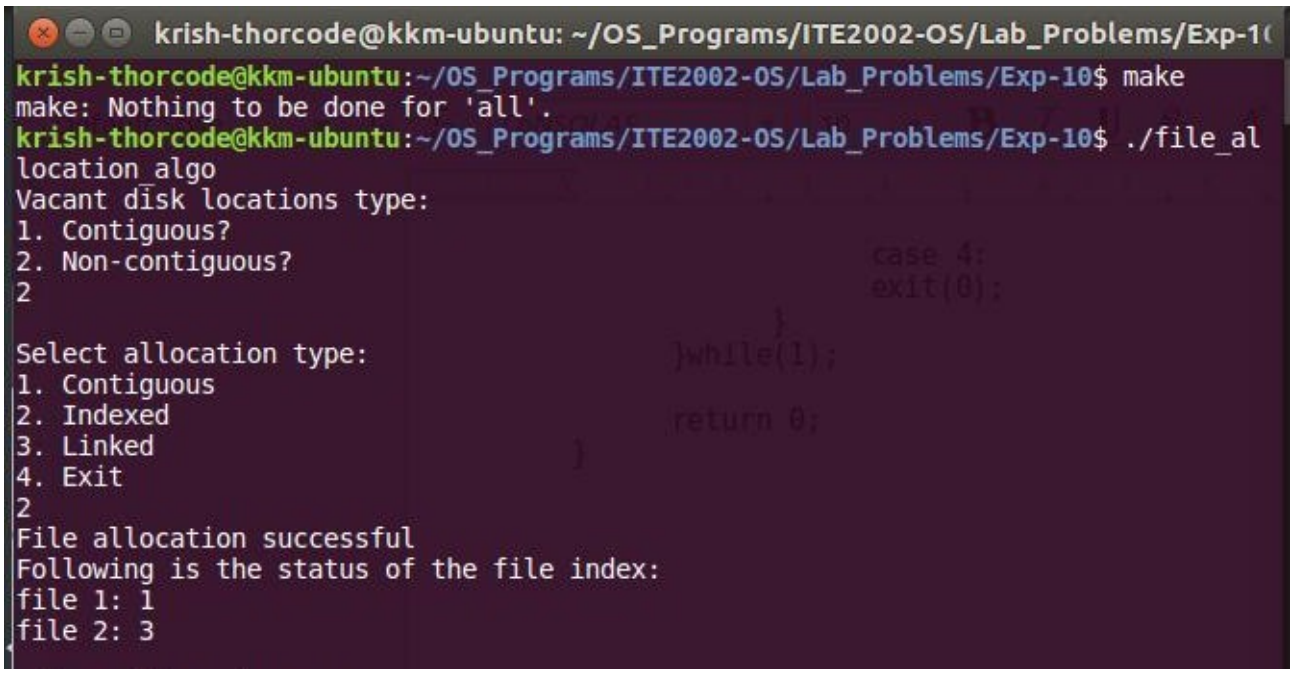


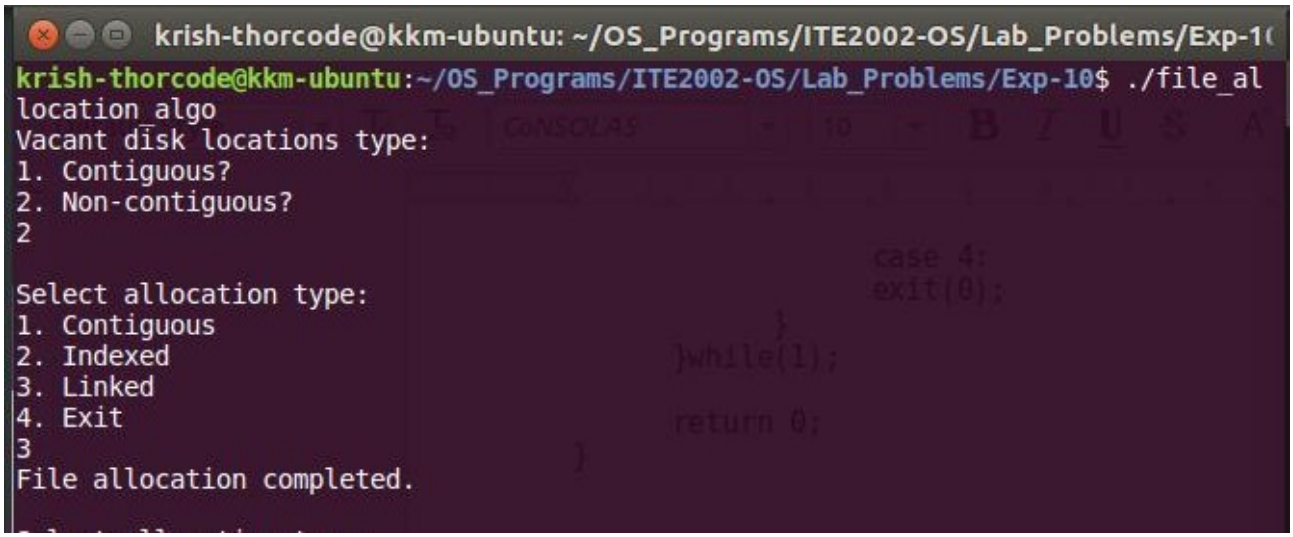


```
krish-thorcode@kkm-ubuntu:~/OS_Programs/ITE2002-OS/Lab_Problems/Exp-10$ ./file_al
location_algo
Vacant disk locations type:
1. Contiguous?
2. Non-contiguous?
1

Select allocation type:
1. Contiguous
2. Indexed
3. Linked
4. Exit
3
File allocation completed.
```

2. non-contiguous memory availability

```
krish-thorcode@kkm-ubuntu: ~/OS_Programs/ITE2002-OS/Lab_Problems/Exp-1(
krish-thorcode@kkm-ubuntu:~/OS_Programs/ITE2002-OS/Lab_Problems/Exp-10$ ./file_al
location_algo
Vacant disk locations type:
1. Contiguous?
2. Non-contiguous?
2

Select allocation type:
1. Contiguous
2. Indexed
3. Linked
4. Exit
1
Contiguous allocation not possible.

Select allocation type:
1. Contiguous
2. Indexed
3. Linked
4. Exit
4
```


krish-thorcode@kkm-ubuntu: ~/OS_Programs/ITE2002-OS/Lab_Problems/Exp-1(
krish-thorcode@kkm-ubuntu:~/OS_Programs/ITE2002-OS/Lab_Problems/Exp-10$ make
make: Nothing to be done for 'all'.
krish-thorcode@kkm-ubuntu:~/OS_Programs/ITE2002-OS/Lab_Problems/Exp-10$ ./file_al
location_algo
Vacant disk locations type:
1. Contiguous?
2. Non-contiguous?
2
Select allocation type:
1. Contiguous
2. Indexed
3. Linked
4. Exit
2
File allocation successful
Following is the status of the file index:
file 1: 1
file 2: 3


krish-thorcode@kkm-ubuntu: ~/OS_Programs/ITE2002-OS/Lab_Problems/Exp-1(
krish-thorcode@kkm-ubuntu:~/OS_Programs/ITE2002-OS/Lab_Problems/Exp-10$ ./file_al
location_algo
Vacant disk locations type:
1. Contiguous?
2. Non-contiguous?
2
Select allocation type:
1. Contiguous
2. Indexed
3. Linked
4. Exit
3
File allocation completed.