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1	Write a function to display an array elements in the reverse order using multiple files. a) using index b) using pointer **Input:** Enter the size of an array 5 Enter elements 11 22 33 44 55 **Output:** Array elements: 11 22 33 44 55 Reversed array: 55 44 33 22 11

	Program:
	#include <stdio.h>
	#include "Question1_reverseindex.c"
	#include "Question1_reversepointer.c"
	
	void main()
	{
	printf("Enter the size of the array :\n");
	int n;
	scanf("%d", &n);
	
	int array[n];
	
	printf("Enter the elements of the array :\n");
	
	for(int i = 0; i < n; i++)
	scanf("%d", &array[i]);
	reverse_index(n, array);
	printf("\n");
	
	reversearray(array, n);
	}

```
#include <stdio.h>

int reverse_index(int n, int array[])
{
printf("Array elements :\n");
for(int i = 0; i < n; i++)
printf("%d ", array[i]);
printf("\n");

printf("Reversed elements :\n");
for(int i = n-1; i >= 0; --i)
printf("%d ", array[i]);
}

#include <stdio.h>

void reversearray(int *p, int n)
{
int *first = p;
int *last = p+n-1;

while(first<last)
{
int temp = *first;
*first = *last;
*last = temp;
first++;
last--;
}
printf("Reversed array elements using pointers are: \n");
for(int i=0; i<n; i++)
printf("%d ", *p++);
printf("\n");
}
```

Output Screenshot:

```
Enter the size of the array :
6
Enter the elements of the array :
1
3
5
7
9
11
Array elements :
1 3 5 7 9 11
Reversed elements :
11 9 7 5 3 1
Reversed array elements using pointers are:
11 9 7 5 3 1
```

2 Write a function for factorial using recursion and use it to find C(n, r) using multiple files.

Input:

5 2

Output:

ncr is: 10

Program:

```
#include <stdio.h>
#include "Question_2_client2.c"

int factorial(int n);

int main()
{
printf("Enter the value of n and r in nCr \n");
int n, r;
scanf("%d%d", &n, &r);

int answer = C(n, r);

printf("The value of nCr is %d\n", answer);
}

#include <stdio.h>
#include "Question_2_client.c"

int C(int n, int r)
{
```

```
return factorial(n)/(factorial(n-r) * factorial(r));
}

#include <stdio.h>

int factorial(int n)
{
if(n == 0)
return 0;
if (n == 1)
return 1;
else
return n * factorial(n-1);
}
```

Output Screenshot:

```
Enter the value of n and r in nCr
10
2
The value of nCr is 45
```

3 Write a C program to print all unique elements of an array using Make file

Input:

Input the number of elements to be stored in the array: 5

Input 5 elements in the array :

element - 0 : 1

element - 1 : 2

element - 2 : 1

element - 3 : 3

element - 4 : 3

Output:

The unique elements found in the array are:

List of Unique Array Elements in this Array are : 2

Program:

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

```
#include "Question3_uniqueElement.c"


int main()
{
int a[100], n;
printf("Enter the number of elements in the array\n");
scanf("%d", &n);
printf("Enter the elements\n");
int i = 0;
while (i < n)
{
scanf("%d", &a[i]);
i++;
}
uniqueElement(a, n);
}
```

Output Screenshot:

```
Enter the number of elements in the array
5
Enter the elements
8
9
9
9
3
Unique elements in the array are 8
Unique elements in the array are 3
```

4

Write a C program to Calculate the power of any number using recursion and multiple files

Input:

Recursion : Calculate the power of any number :

Input the base value : 4

Input the value of power : 2

Output:

The value of 4 to the power of 2 is : 16

Program:

```
#include <stdio.h>
#include "Question3_power.c"

int main()
{
int n, pow;
printf("Enter the number and the power that you want to calculate for :\n");
scanf("%d%d", &n, &pow);

int ans = ppow(n, pow);

printf("The power of %d to %d is : %d\n", n, pow, ans);
}

#include <stdio.h>

int ppow(int num, int pow)
```

```
{
if(pow == 0)
return 1;
else
return num * ppow(num, pow-1);
}
```

Output Screenshot:

```
Enter the number and the power that you want to calculate for :
5
3
The power of 5 to 3 is : 125
```

5 Write a function to check whether a given number is prime and use that to find the next prime number, greater than a given number.

Input1:

Enter a number

4

Output1:

Next prime number=5

Input2:

Enter a number

113

Ouput2:

Next prime number=127

```
#include <stdio.h>
int prime(int n);

int main()
```

```
{
int n;

printf("Enter the number that you want to check if it is prime: \n");
scanf("%d", &n);

int count = prime(++n);
while (count != 0)
count = prime(++n);

printf("The next prime number is %d\n", n);
}

int prime(int n)
{
int count = 0;

if (n == 0 || n == 1)
{
printf("It is neither a prime nor composite\n");
return 2;
}

else
for (int i = 2; i < n; i++)
if (n % i == 0)
{
count = 1;
break;
}

return count;
}
```

Output Screenshot:

```
Enter the number that you want to check if it is prime:
7
The next prime number is 11
```

Practice Programs

1

Write a program in C to find the maximum and minimum element in an array

Input:

Find maximum and minimum element in an array :

Input the number of elements to be stored in the array :5

Input 5 elements in the array :

element - 0 : 12

element - 1 : 10

element - 2 : 6

element - 3 : 7

element - 4 : 56

Output:

Maximum element is : 56

Minimum element is : 6

Program:

```
#include <stdio.h>

int main()
{
int arr[100], n, max = 0, min = 0;

printf("Enter the number of elements in the array :\n");
scanf("%d", &n);
```

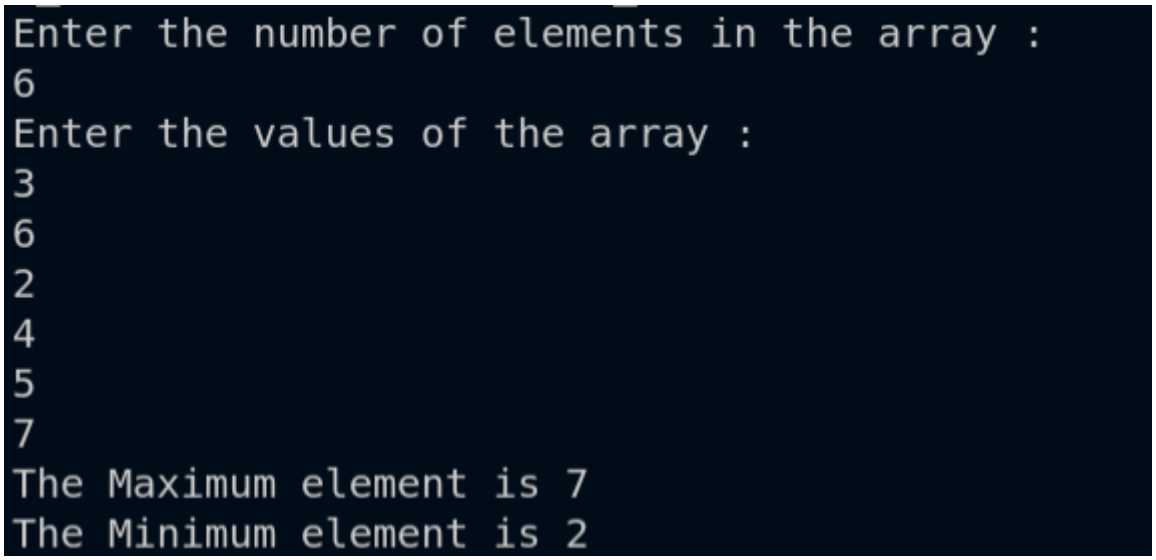
```
printf("Enter the values of the array :\n");

for(int i = 0; i < n; i++)
scanf("%d", &arr[i]);
max = arr[0];
min = arr[0];
for(int i = 0; i < n; i++)
{

if(arr[i] > max)
max = arr[i];
if(arr[i] < min)
min = arr[i];
}

printf("The Maximum element is %d\nThe Minimum element is %d\n", max, min);
}
```

Output Screenshot:



2 Write a function to populate an array with fibonacci numbers using make files

Input:

Enter how many Fibonacci numbers you want populate:

5

Output:

	Fibonacci number are: 0 1 1 2 3

	Program:
	#include <stdio.h>
	
	void fib(int n)
	{
	int a = 0, b = 1;
	int term = a + b;
	
	printf("Fibonacci Series: \n%d \n%d \n", a, b);
	
	while ((n - 1) != 0)
	{
	printf("%d \n", term);
	a = b;
	b = term;
	term = a + b;
	n--;
	}
	}
	
	#include <stdio.h>

```
#include "QuestionPractice_2_fibonacci.c"


int main()
{
int n;
printf("Enter the range: ");
scanf("%d", &n);
fib(n);
}
```

Output Screenshot: