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Min Max using Divide & Conquer
*/

Code →

```
#include <stdio.h>
#include <stdlib.h>
#define SIZE 20
int count = 1;

void display(int arr[], int n) {
  //printf("\n");
  for (int i=0; i<n; i++) {
    printf("%d   ",arr[i]);
  }
}

void input(int arr[], int n) {
  for (int i=0; i<n; i++) {
    printf("\nElement A[%d]: ",i+1);
    scanf("%d",&arr[i]);
  }
}

void MaxMin(int arr[], int left, int right, int *max, int *min) {
  int max1,min1,mid;
  if (left == right) {
    *max = arr[left];
    *min = arr[left];
  }

  else if (left == right - 1) {
    if (arr[left] < arr[right])
    {
      *max=arr[right];
      *min=arr[left];
    }
    else
    {
      *max=arr[left];
      *min=arr[right];
    }
  }
```

```
  else {
    mid = (left + right) / 2;
    MaxMin(arr,left,mid,max,min);
    max1 = *max;
    min1 = *min;
    MaxMin(arr,mid+1,right,max,min);
    if (*max < max1) {
      *max = max1;
    }
    if (min1 < *min){
      *min = min1;
    }
  }
  printf("\n\nFOR PASS '%d':-",count++);
  printf("\nMax: %d",*max);
  printf("\nMin: %d",*min);
  printf("\nArray: ");
  display(arr,right+1);
  //printf(" ]");
}

int main() {
  int n, arr[SIZE];
  int *max, *min;
  max = (int*)malloc(sizeof(int));
  min = (int*)malloc(sizeof(int));
  printf("\n---MAX MIN USING DIVIDE AND CONQUER---\n\n");
  printf("\nSize of the Array: ");
  scanf("%d",&n);
  input(arr,n);
  MaxMin(arr,0,n-1,max,min);
  printf("\n\nMAX IN THE ARRAY--> %d",*max);
  printf("\nMIN IN THE ARRAY--> %d\n",*min);
  return 0;
}
```

Output →

```
[amoddhopavkar@Amods-MacBook-Air Min Max % gcc MinMax.c -o MinMax
[amoddhopavkar@Amods-MacBook-Air Min Max % ./MinMax

---MAX MIN USING DIVIDE AND CONQUER---


Size of the Array: 5

Element A[1]: 12

Element A[2]: 32

Element A[3]: 1

Element A[4]: 42

Element A[5]: 4


FOR PASS '1':-
Max: 32
Min: 12
Array: 12   32

FOR PASS '2':-
Max: 1
Min: 1
Array: 12   32   1

FOR PASS '3':-
Max: 32
Min: 1
Array: 12   32   1

FOR PASS '4':-
Max: 42
Min: 4
Array: 12   32   1   42   4

FOR PASS '5':-
Max: 42
Min: 1
Array: 12   32   1   42   4

MAX IN THE ARRAY--> 42
MIN IN THE ARRAY--> 1
amoddhopavkar@Amods-MacBook-Air Min Max %
```