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Lớp: SE1709

### Bài tập P11.5-7

#### P11.5:

##### Code:

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

```
void inputArray(int arr[], int *pn) {  
    for (int i = 0; i < *pn; i++) {  
        printf("a[%d] = ", i);  
        scanf("%d", &arr[i]);  
    }  
}
```

```
void selectionSort(int arr[], int *pn) {  
    int minIndex;  
    int i, j;  
    for (i = 0; i < *pn - 1; i++) {  
        minIndex = i;  
        for (j = i + 1; j < *pn; j++) {  
            if (arr[minIndex] > arr[j]) minIndex = j;  
        }  
        if (minIndex > i) {  
            int t = arr[minIndex];  
            arr[minIndex] = arr[i];  
            arr[i] = t;  
        }  
    }  
}
```

```
int binarySearch(int arr[], int *pn, int a) {
```

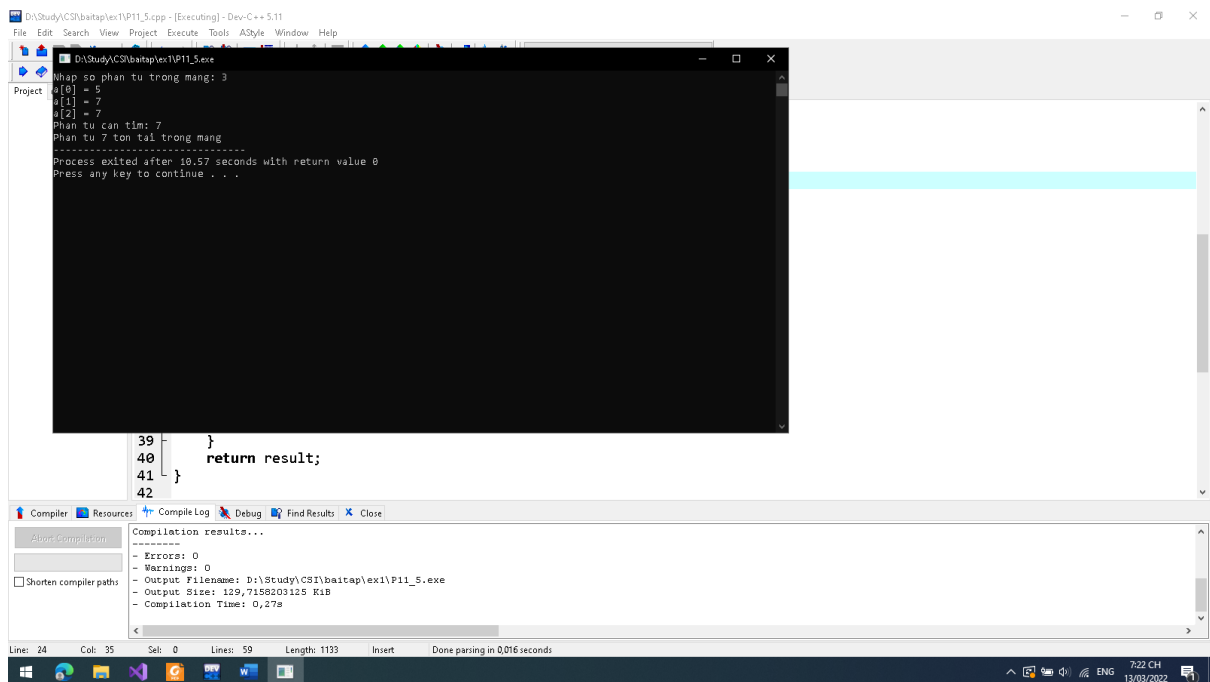
```

int i = 0, j = *pn - 1, c;
int result = -1;
while (i <= j) {
    c = (i + j) / 2;
    if (arr[c] == a) result = c;
    if (arr[c] > a) j = c - 1;
    else i = c + 1;
}
return result;
}

int main() {
    int n, a;
    int arr[100];
    printf("Nhap so phan tu trong mang: ");
    scanf("%d", &n);
    inputArray(arr, &n);
    selectionSort(arr, &n);
    printf("Phan tu can tim: ");
    scanf("%d", &a);
    if (binarySearch(arr, &n, a) == -1) {
        printf("Khong tim thay phan tu do");
    }
    else printf("Phan tu %d ton tai trong mang", a);
    return 0;
}

```

## Kết quả:



```
D:\Study\CS\baicap\ex1\P11_5.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
D:\Study\CS\baicap\ex1\P11_5.exe
Nhập số phần tử trong mảng: 3
a[0] = 5
a[1] = 7
a[2] = 7
Phần tử cần tìm: 7
Phần tử 7 tồn tại trong mảng
.....
Process exited after 10.57 seconds with return value 0
Press any key to continue . . .

39     }
40     return result;
41 }
42

Compiler Resources Compile Log Debug Find Results Close
About Compilation
Shorten compiler paths
Compilation results...
- Errors: 0
- Warnings: 0
- Output Filename: D:\Study\CS\baicap\ex1\P11_5.exe
- Output Size: 129,715,820,125 KiB
- Compilation Time: 0,27s

Line: 24 Col: 35 Sel: 0 Lines: 59 Length: 1133 Insert Done parsing in 0,016 seconds
7:22 CH 13/03/2022
```

P11-6:

### Code:

```
/*
```

Name: Tran Nguyen Quoc Cuong

Date: 2022/03/02

```
*/
```

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

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

```
void inputArray(int arr[], int n) {
    for (int i = 0; i < n; i++) {
        printf("a[%d] = ", i);
        scanf("%d", &arr[i]);
    }
}
```

```
void selectionSort(int arr[], int n) {
```

```

int minIndex;
int i, j;
for (i = 0; i < n - 1; i++) {
    minIndex = i;
    for (j = i + 1; j < n; j++) {
        if (arr[minIndex] > arr[j]) minIndex = j;
    }
    if (minIndex > i) {
        int t = arr[minIndex];
        arr[minIndex] = arr[i];
        arr[i] = t;
    }
}
}

```

```

int search(int arr[], int n, int add) {
    int p;
    for(int i = 0; i < n; i++) {
        if(add < arr[i]) {
            p = i;
            break;
        } else {
            p = i + 1;
        }
    }
    return p;
}
}

```

```

void addValue(int arr[], int n) {
    int add;
    printf("Nhap phan tu can nhap vao mang: ");
    scanf("%d", &add);
}

```

```

        int loc = search(arr, n, add);
        for (int i = n + 1; i >= loc; i--) {
            arr[i] = arr[i - 1];
        }
        arr[loc] = add;
        ++n;
    }

```

```

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

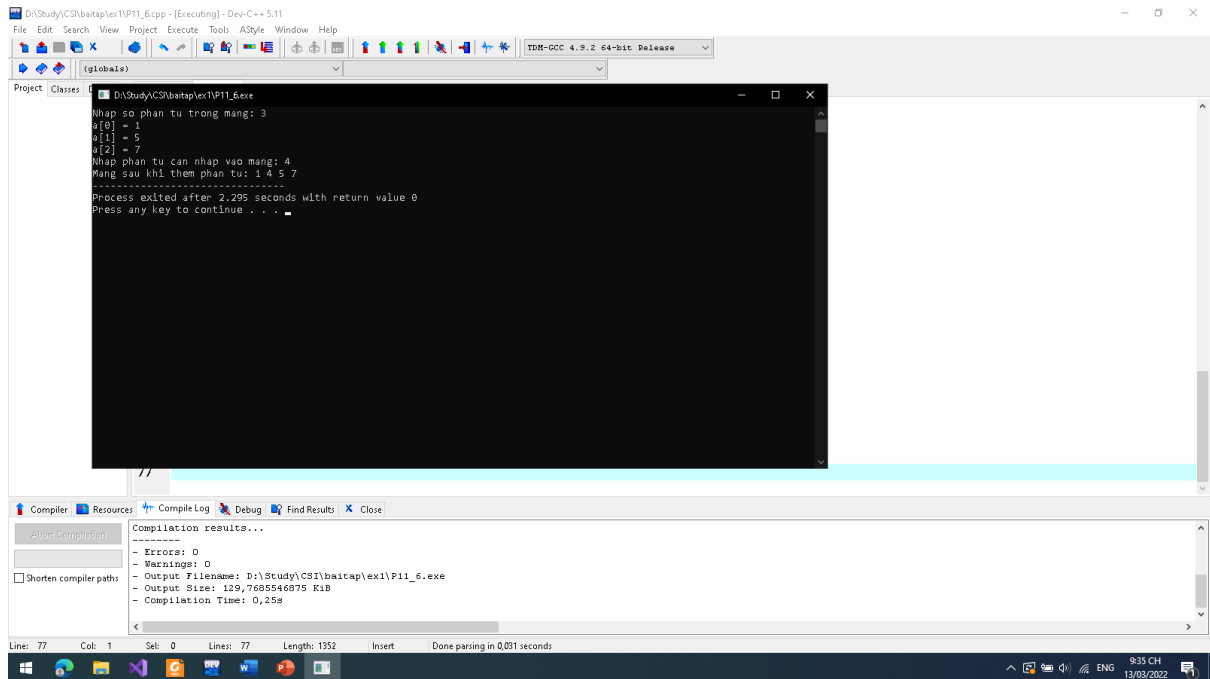
```

```

int main() {
    int n, a;
    int *arr;
    arr = (int*)calloc (100, sizeof(int));
    printf("Nhap so phan tu trong mang: ");
    scanf("%d", &n);
    inputArray(arr, n);
    selectionSort(arr, n);
    addValue(arr, n);
    printf("Mang sau khi them phan tu: ");
    output(arr, n);
    return 0;
}

```

## Kết quả:



```
D:\Study\CS\baip\ex1\P11_6.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globais)
Project Classes
D:\Study\CS\baip\ex1\P11_6.exe
Nhập số phần tử trong mảng: 3
a[0] = 1
a[1] = 5
a[2] = 7
Nhập phần tử cần nhập vào mảng: 4
Mảng sau khi thêm phần tử: 1 4 5 7
-----
Process exited after 2.295 seconds with return value 0
Press any key to continue . . .

Compiler Resources Compile Log Debug Find Results Close
About Compilation
Shorten compiler paths
Compilation results...
-----
- Errors: 0
- Warnings: 0
- Output Filename: D:\Study\CS\baip\ex1\P11_6.exe
- Output Size: 129,7605546075 KiB
- Compilation Time: 0,25s
<
Line: 77 Col: 1 Sel: 0 Lines: 77 Length: 1352 Insert Done parsing in 0.031 seconds
Windows Taskbar: 9:35 CH 13/03/2022
```

## P11.7:

### Code:

```
/*
```

Name: Tran Nguyen Quoc Cuong

Date: 2022/03/02

```
*/
```

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

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

```
void inputArray(int arr[], int n) {
    for (int i = 0; i < n; i++) {
        printf("a[%d] = ", i);
        scanf("%d", &arr[i]);
    }
}
```

```

void selectionSort(int arr[], int n) {
    int minIndex;
    int i, j;
    for (i = 0; i < n - 1; i++) {
        minIndex = i;
        for (j = i + 1; j < n; j++) {
            if (arr[minIndex] > arr[j]) minIndex = j;
        }
        if (minIndex > i) {
            int t = arr[minIndex];
            arr[minIndex] = arr[i];
            arr[i] = t;
        }
    }
}

```

```

int search(int arr[], int n, int del) {
    int p = -1;
    for (int i = 0; i < n; i++) {
        if (del == arr[i]) p = i;
    }
    return p;
}

```

```

void output(int arr[], int n) {
    for (int i = 0; i < n - 1; i++) {
        printf("%d ", arr[i]);
    }
}

```

```

void delValue(int arr[], int n) {

```

```

int del;

printf("Nhap phan tu can xoa khoi mang: ");
scanf("%d", &del);

int loc = search(arr, n, del);

if (loc == -1) printf("Khong xoa duoc phan tu vi phan tu khong ton tai");
else {
    for (int i = loc; i < n - 1; i++) {
        arr[i] = arr[i + 1];
    }
    printf("Mang sau khi xoa phan tu: ");
    output(arr, n);
}
}

```

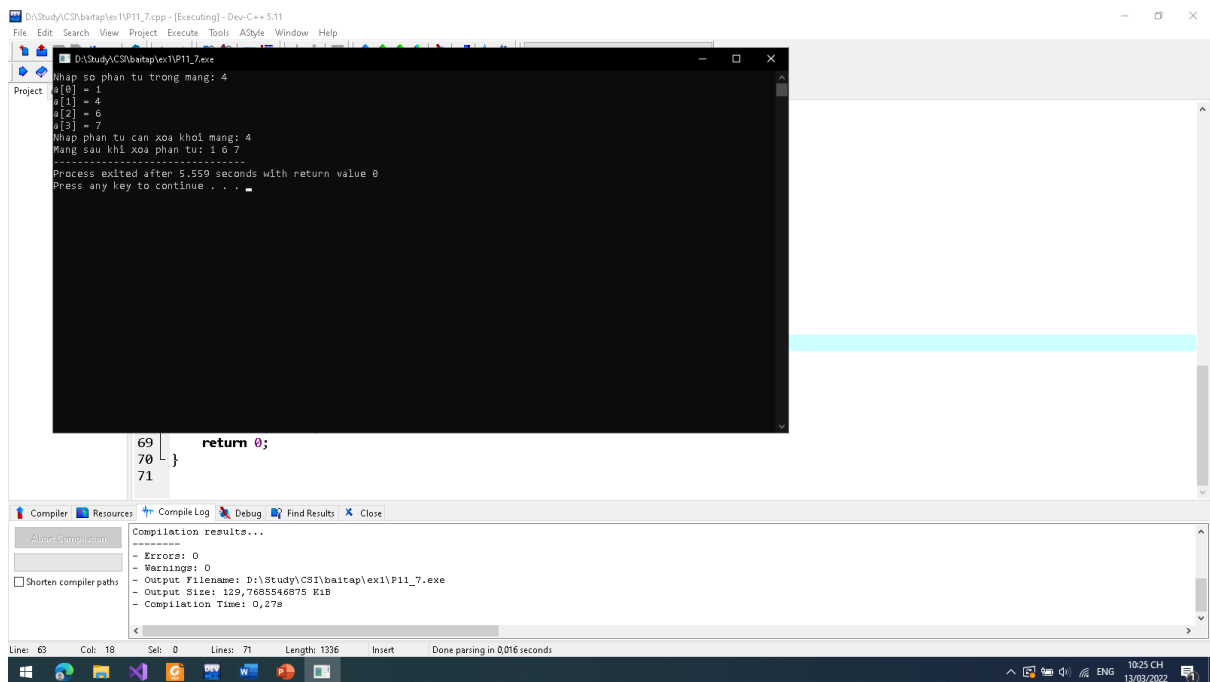
```

int main() {
    int n, a;
    int arr[100];
    printf("Nhap so phan tu trong mang: ");
    scanf("%d", &n);
    inputArray(arr, n);
    selectionSort(arr, n);
    delValue(arr, n);
    return 0;
}

```



## Kết quả:



The screenshot shows a C++ IDE with the following components:

- Project Window:** Displays the project name "D:\Study\CS\baicap\ex1\P11\_7.exe".
- Output Window:** Shows the execution output:

```
Nhap so phan tu trong mang: 4
a[0] = 1
a[1] = 4
a[2] = 6
a[3] = 7
Nhap phan tu can xoa khoi mang: 4
Mang sau khi xoa phan tu: 1 6 7
.....
Process exited after 5.559 seconds with return value 0
Press any key to continue . . .
```
- Source Code Editor:** Shows the following code:

```
69     return 0;
70 }
71
```
- Compiler Window:** Displays the compilation results:

```
Compilation results...
-----
- Errors: 0
- Warnings: 0
- Output Filename: D:\Study\CS\baicap\ex1\P11_7.exe
- Output Size: 129,768,554,607,5 KiB
- Compilation Time: 0,27s
```
- Status Bar:** Shows "Line: 63, Col: 18, Sel: 0, Lines: 71, Length: 1336, Insert, Done parsing in 0,016 seconds".
- Taskbar:** Shows the Windows taskbar with various application icons and the system clock displaying "10:25 CH 13/03/2022".