

ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

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The lesson taking about basic of array.

TP5-Loop (for loop while loop and do while loop)

TP: Algorithm and Programming

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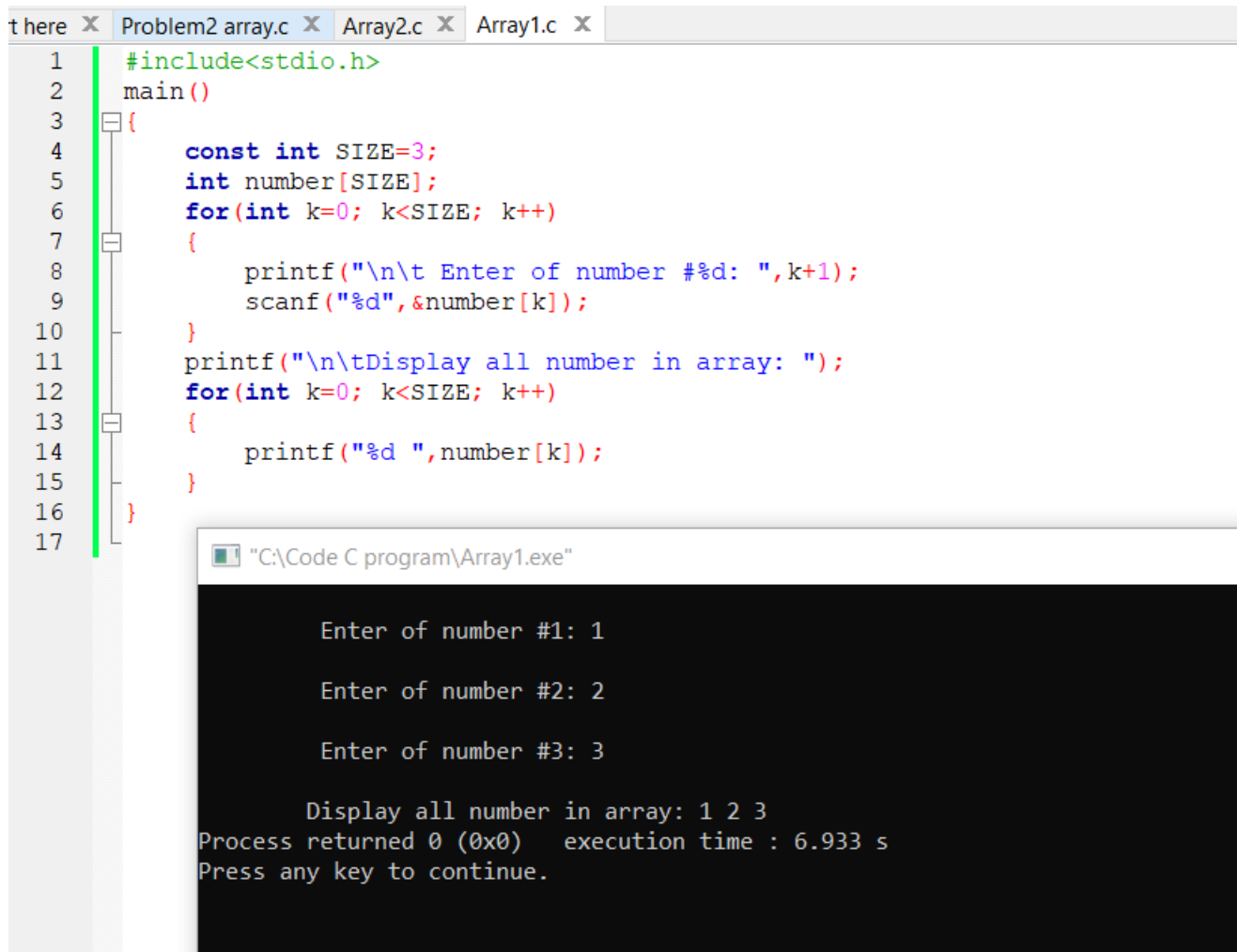
Group: I3-GIC-C

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Contents

Problem1:.....	3
Problem2:.....	4
Problem3:.....	5
Problem4:.....	6
Promlem5:.....	7

Problem1: Write a c program ask user for number and store in an array. Display all number in array.



The image shows a code editor with a C program and a terminal window displaying its execution. The code defines an array of size 3, prompts the user to enter three numbers, and then displays them. The terminal output shows the user entering 1, 2, and 3, followed by the program displaying '1 2 3' and ending with a return message and a prompt to press a key.

```
1  #include<stdio.h>
2  main()
3  {
4      const int SIZE=3;
5      int number[SIZE];
6      for(int k=0; k<SIZE; k++)
7      {
8          printf("\n\t Enter of number #k: ",k+1);
9          scanf("%d",&number[k]);
10     }
11     printf("\n\tDisplay all number in array: ");
12     for(int k=0; k<SIZE; k++)
13     {
14         printf("%d ",number[k]);
15     }
16 }
17
```

"C:\Code C program\Array1.exe"

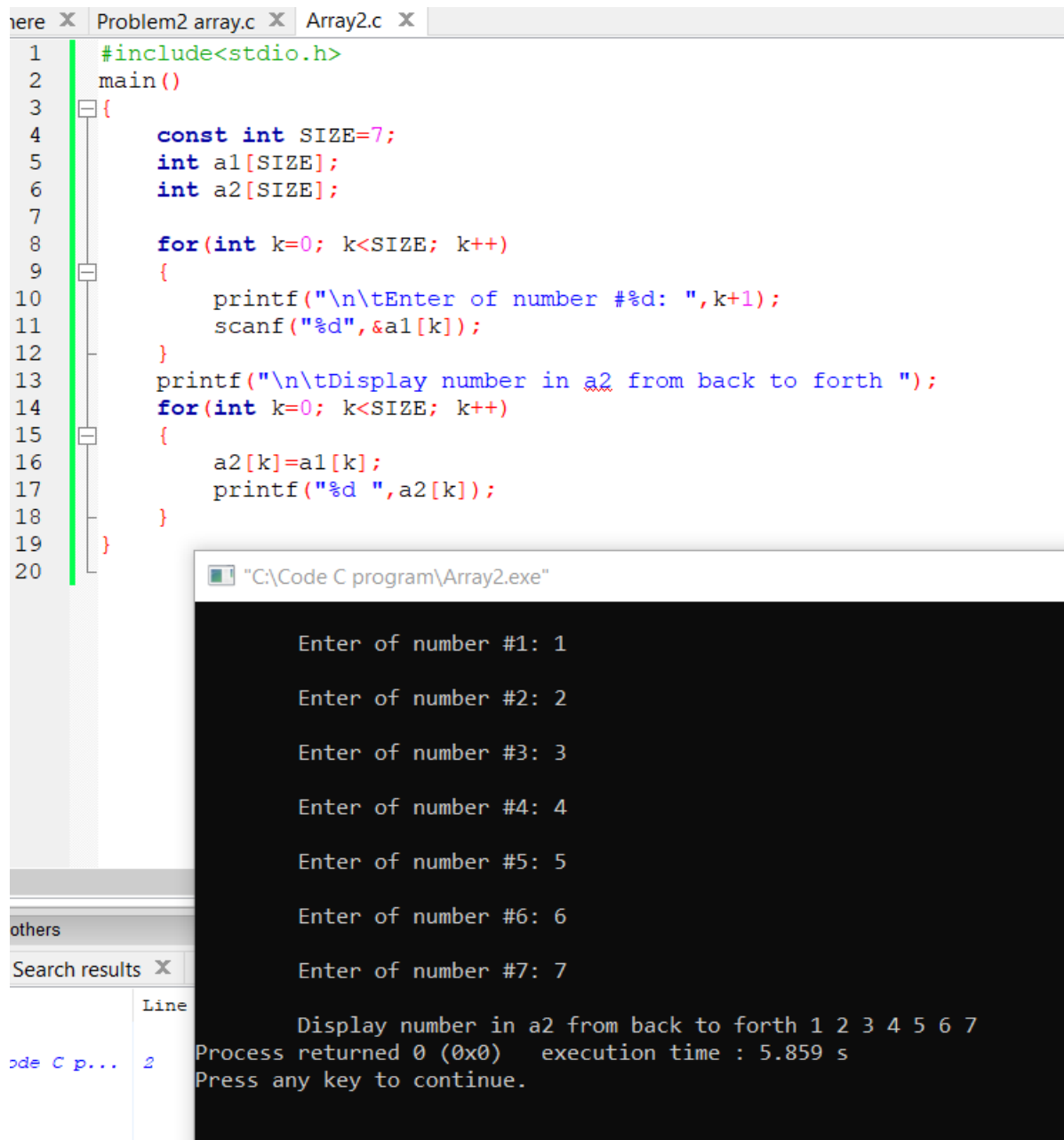
```
Enter of number #1: 1

Enter of number #2: 2

Enter of number #3: 3

Display all number in array: 1 2 3
Process returned 0 (0x0)   execution time : 6.933 s
Press any key to continue.
```

Problem2: Write a c program to stored 7 number in array call a1 created a new array call a2. Make a2 has the data as same as a1(copy a1 to a2). Display number in a2 from back to forth.



The image shows a code editor window with a file named 'Array2.c' open. The code is a C program that reads 7 numbers into an array 'a1' and then copies them into another array 'a2'. It then prints the contents of 'a2' from back to forth. Below the code editor, there is a terminal window showing the execution of the program. The terminal output shows the user entering numbers 1 through 7, followed by the program displaying the numbers in reverse order (7 down to 1). The program then prints the execution time and prompts the user to press a key to continue.

```
1 #include<stdio.h>
2 main()
3 {
4     const int SIZE=7;
5     int a1[SIZE];
6     int a2[SIZE];
7
8     for(int k=0; k<SIZE; k++)
9     {
10         printf("\n\tEnter of number #d: ",k+1);
11         scanf("%d",&a1[k]);
12     }
13     printf("\n\tDisplay number in a2 from back to forth ");
14     for(int k=0; k<SIZE; k++)
15     {
16         a2[k]=a1[k];
17         printf("%d ",a2[k]);
18     }
19 }
20
```

Enter of number #1: 1
Enter of number #2: 2
Enter of number #3: 3
Enter of number #4: 4
Enter of number #5: 5
Enter of number #6: 6
Enter of number #7: 7

Display number in a2 from back to forth 1 2 3 4 5 6 7
Process returned 0 (0x0) execution time : 5.859 s
Press any key to continue.

Problem3: Write a c program to store 5 number in an array (ask input from user). Find sum of all number in array and also average. Display all students information on screen.

```
1  #include<stdio.h>
2
3  main()
4  {
5      const int SIZE=5;
6      int number[SIZE];
7      printf("\n\t Display sum and average of all numbers.\n");
8      for(int k=0; k<SIZE; k++)
9      {
10         printf("\n\tEnter of number %d: ",k+1);
11         scanf("%d",&number[k]);
12     }
13     float avg,sum=0;
14
15     for(int p=0; p<SIZE; p++)
16     {
17         sum=sum+number[p];
18     }
19     avg=sum/5;
20
21     printf("\n\t summation of number: %.2f",sum);
22     printf("\n\t average of number: %.2f",avg);
23
24 }
25
```

"C:\Code C program\Array3.exe"

```
Display sum and average of all numbers.

Enter of number 1: 10

Enter of number 2: 20

Enter of number 3: 30

Enter of number 4: 40

Enter of number 5: 50

summation of number: 150.00
average of number: 30.00
Process returned 0 (0x0)   execution time : 9.313 s
Press any key to continue.
```

Problem4: Write a program in c to store data of 5 students. Each student has name score email and phone number. The program ask user for information of the 5 students. Display all students information on screen.

The screenshot shows a C program in a text editor and its execution in a command prompt. The program defines an array of 5 students, each with a name, score, email, and phone number. It prompts the user to enter this information for each student and then displays all the collected data.

```

1 #include<stdio.h>
2 main()
3 {
4     const int SIZE=5;
5     char names[SIZE][20];
6     int scores[SIZE];
7     char email[SIZE][20];
8     int phone_number[SIZE];
9
10    for(int k=0; k<SIZE ; k++)
11    {
12        printf("\n\t Information all students #d\n",k+1);
13        printf("Enter your name: ");scanf("%s",&names[k]);
14        printf("Enter your scores: ");scanf("%d",&scores[k]);
15        printf("Enter your email: ");scanf("%s",&email[k]);
16        printf("Enter your phone number: ");scanf("%d",&phone_number[k]);
17    }
18    printf("\n\t**Display all students is information.\n ");
19    for(int k=0; k<SIZE; k++)
20    {
21        printf("\n\t%.2d\t%s\t%d\t%s\t%d\n",k+1,names[k],scores[k],email[k],phone_number[k]);
22    }
23 }
24

```

The command prompt shows the following output:

```

C:\Code C program\array4.exe
    Information all students #1
Enter your name: Dina
Enter your scores: 50
Enter your email: dina@gmail.com
Enter your phone number: 098765432

    Information all students #2
Enter your name: Sing
Enter your scores: 60
Enter your email: sing@gmail.com
Enter your phone number: 089765432

    Information all students #3
Enter your name: Rom
Enter your scores: 70
Enter your email: rom@gmail.com
Enter your phone number: 078965432

    Information all students #4
Enter your name: Nang
Enter your scores: 80
Enter your email: nang@gmail.com
Enter your phone number: 069875432

    Information all students #5
Enter your name: Horng
Enter your scores: 90
Enter your email: horng@gmail.com
Enter your phone number: 067895432

```

The screenshot shows a C program in a text editor and its execution in a command prompt. The program defines an array of 5 students, each with a name, score, email, and phone number. It prompts the user to enter this information for each student and then displays all the collected data in a formatted table.

```

1 #include<stdio.h>
2 main()
3 {
4     const int SIZE=5;
5     char names[SIZE][20];
6     int scores[SIZE];
7     char email[SIZE][20];
8     int phone_number[SIZE];
9
10    for(int k=0; k<SIZE ; k++)
11    {
12        printf("\n\t Information all students #d\n",k+1);
13        printf("Enter your name: ");scanf("%s",&names[k]);
14        printf("Enter your scores: ");scanf("%d",&scores[k]);
15        printf("Enter your email: ");scanf("%s",&email[k]);
16        printf("Enter your phone number: ");scanf("%d",&phone_number[k]);
17    }
18    printf("\n\t**Display all students is information.\n ");
19    for(int k=0; k<SIZE; k++)
20    {
21        printf("\n\t%.2d\t%s\t%d\t%s\t%d\n",k+1,names[k],scores[k],email[k],phone_number[k]);
22    }
23 }
24

```

The command prompt shows the following output:

```

C:\Code C program\array4.exe

**Display all students is information.

01    Dina    50    dina@gmail.com    98765432

02    Sing    60    sing@gmail.com    89765432

03    Rom     70    rom@gmail.com     78965432

04    Nang    80    nang@gmail.com    69875432

05    Horng   90    horng@gmail.com   67895432

Process returned 0 (0x0)   execution time : 182.565 s
Press any key to continue.

```

Problem 5: Same as problem #4. Find average score. The program displays information of all students who got scores more than average.

```

1 #include<stdio.h>
2 main()
3 {
4     const int SIZE=5;
5     char names[SIZE][20];
6     int scores[SIZE];
7     char email[SIZE][20];
8     int phone_number[SIZE];
9     for(int k=0; k<SIZE; k++)
10    {
11        printf("\n\t Information all students #d\n",k+1);
12        printf("Enter your name: ");scanf("%s",&names[k]);
13        printf("Enter your scores: ");scanf("%d",&scores[k]);
14        printf("Enter your email: ");scanf("%s",&email[k]);
15        printf("Enter your phone number: ");scanf("%d",&phone_number[k]);
16    }
17    printf("\n\t Find average of scores\n");
18    float avg,sum=0;
19    for(int p=0; p<5; p++)
20    {
21        sum=sum+scores[p];
22    }
23    avg=sum/5;
24    printf("\n\t average of scores: %.1f\n",avg);
25    printf("\n\t**Display all students is information.\n ");
26    for(int k=0; k<SIZE; k++)
27    {
28        printf("\n\t%.2d\t%s\t%d\t%s\t%d\n",k+1,names[k],scores[k],email[k],phone_number[k]);
29    }
30    printf("\n\t\t\t\t\t scores more than average are: ");
31
32    for(int k=0; k<SIZE; k++)
33    {
34        if(scores[k]>avg)
35        {
36            printf("%d ",scores[k]);

```

Process returned 0 (0x0) execution time : 159.786 s
Press any key to continue.

```

1 #include<stdio.h>
2 main()
3 {
4     const int SIZE=5;
5     char names[SIZE][20];
6     int scores[SIZE];
7     char email[SIZE][20];
8     int phone_number[SIZE];
9     for(int k=0; k<SIZE; k++)
10    {
11        printf("\n\t Information all students #d\n",k+1);
12        printf("Enter your name: ");scanf("%s",&names[k]);
13        printf("Enter your scores: ");scanf("%d",&scores[k]);
14        printf("Enter your email: ");scanf("%s",&email[k]);
15        printf("Enter your phone number: ");scanf("%d",&phone_number[k]);
16    }
17    printf("\n\t Find average of scores\n");
18    float avg,sum=0;
19    for(int p=0; p<5; p++)
20    {
21        sum=sum+scores[p];
22    }
23    avg=sum/5;
24    printf("\n\t average of scores: %.1f\n",avg);
25    printf("\n\t**Display all students is information.\n ");
26    for(int k=0; k<SIZE; k++)
27    {
28        printf("\n\t%.2d\t%s\t%d\t%s\t%d\n",k+1,names[k],scores[k],email[k],phone_number[k]);
29    }
30    printf("\n\t\t\t\t\t scores more than average are: ");
31
32    for(int k=0; k<SIZE; k++)
33    {
34        if(scores[k]>avg)
35        {
36            printf("%d ",scores[k]);

```

Find average of scores
average of scores: 70.0

**Display all students is information.

01 Pov 50 pov@gmail.com 98765432
02 Nana 60 nana@gmail.com 89765432
03 Leak 70 leak@gmail.com 79865432
04 Nak 80 nak@gmail.com 56789432
05 Neth 90 neth@gmail.com 69875432

scores more than average are: 80 90