

EX 5 COMPETITIVE PROGRAMING

1)

```
#include <stdio.h>

int main() {
    int n;
    scanf("%d", &n);
    int nums[n];

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

    int slow = nums[0];
    int fast = nums[0];
    do {
        slow = nums[slow];
        fast = nums[nums[fast]];
    } while (slow != fast);

    slow = nums[0];
    while (slow != fast) {
        slow = nums[slow];
        fast = nums[fast];
    }

    printf("%d\n", slow);
    return 0;
}
```

2)

```
#include <stdio.h>

int main() {
```

```
int n;
scanf("%d", &n);
int nums[n];

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

int slow = nums[0];
int fast = nums[0];
do {
    slow = nums[slow];
    fast = nums[nums[fast]];
} while (slow != fast);

slow = nums[0];
while (slow != fast) {
    slow = nums[slow];
    fast = nums[fast];
}

printf("%d\n", slow);
return 0;
}
```

3)

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

```
int main() {
    int T;
    scanf("%d", &T);

    while (T--) {
        int n1, n2;
        scanf("%d", &n1);
        int arr1[n1];
        for (int i = 0; i < n1; i++) {
            scanf("%d", &arr1[i]);
        }

        scanf("%d", &n2);
        int arr2[n2];
```

```
    for (int i = 0; i < n2; i++) {
        scanf("%d", &arr2[i]);
    }

    int i = 0, j = 0;

    while (i < n1 && j < n2) {
        if (arr1[i] == arr2[j]) {
            printf("%d ", arr1[i]);
            i++;
            j++;
        } else if (arr1[i] < arr2[j]) {
            i++;
        } else {
            j++;
        }
    }
    printf("\n");
}
return 0;
}
```

4)

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

```
int main() {
    int T;
    scanf("%d", &T);

    while (T--) {
        int n1, n2;
        scanf("%d", &n1);
        int arr1[n1];
        for (int i = 0; i < n1; i++) {
            scanf("%d", &arr1[i]);
        }

        scanf("%d", &n2);
        int arr2[n2];
        for (int i = 0; i < n2; i++) {
            scanf("%d", &arr2[i]);
        }
    }
}
```

```
int i = 0, j = 0;

while (i < n1 && j < n2) {
    if (arr1[i] == arr2[j]) {
        printf("%d ", arr1[i]);
        i++;
        j++;
    } else if (arr1[i] < arr2[j]) {
        i++;
    } else {
        j++;
    }
}
printf("\n");
}
return 0;
}
```

5)

#include <stdio.h>

```
int main() {
    int n;
    scanf("%d", &n);
    int A[n];

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

    int k;
    scanf("%d", &k);

    int i = 0, j = 1;

    while (i < n && j < n) {
        if (i != j && A[j] - A[i] == k) {
            printf("1\n");
            return 0;
        } else if (A[j] - A[i] < k) {
            j++;
        } else {
            i++;
        }
    }
}
```

```
    }  
}  
  
printf("0\n");  
return 0;  
}
```

6)

#include <stdio.h>

```
int main() {  
    int n;  
    scanf("%d", &n);  
    int A[n];  
  
    for (int i = 0; i < n; i++) {  
        scanf("%d", &A[i]);  
    }  
  
    int k;  
    scanf("%d", &k);  
  
    int i = 0, j = 1;  
  
    while (i < n && j < n) {  
        if (i != j && A[j] - A[i] == k) {  
            printf("1\n");  
            return 0;  
        } else if (A[j] - A[i] < k) {  
            j++;  
        } else {  
            i++;  
        }  
    }  
}  
  
printf("0\n");  
return 0;  
}
```