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① Linear Search

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

void main() {
    int a[5];
    int i, key;
    printf("Enter values:");
    for (i=0; i<5; i++) {
        scanf("%d", &a[i]);
    }
    printf("Enter key:\n");
    scanf("%d", &key);
    for (i=0; i<5; i++) {
        if (a[i] == key) {
            printf("Key found at %d", i);
            exit(0);
        }
    }
    if (i==5) {
        printf("Key not found");
    }
}
```

Op. Enter values:

1
2
3
4
5

Enter key: 2
Key found at 1.

② Binary Search

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

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

```
void main()
```

```
{ int a[5];
```

```
int i, high = 4, low = 0, key, mid;
```

```
printf ("Enter values : ");
```

```
for (i=0; i<5; i++) {
```

```
scanf ("%d", &a[i]);
```

```
}
```

```
printf ("Enter key : ");
```

```
scanf ("%d", &key);
```

```
while (low < high) {
```

```
mid = (low + high)/2;
```

```
If (a[mid] == key) {
```

```
printf ("key found at %d",  
mid);
```

```
}
```

```
if (a[mid] < key)
```

```
low = mid + 1;
```

```
else
```

```
high = mid - 1;
```

```
}
```

```
printf ("key not found ");
```

Q.P. Enter values:

1

2

3

4

5

Enter key: 4

Key found at 3

③ Matrix Multiplication

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

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

```
void main()
```

```
{ int m, n, p, q;
```

```
printf ("Enter size of a");
```

```
scanf ("%d %d", &m, &n);
```

```
printf ("Enter size of b");
```

```
scanf ("%d %d", &p, &q);
```

```
if (n != p)
```

```
printf ("Matrix cannot be multiplied");
```

```
exit(0);
```

```
}
```

```
int a[m][n], b[p][q], c[m][q];
```

```
int i, j, k;
```

```
printf ("Enter values of a: ");
```

```
for (i=0; i<n; i++) {
```

```
    for (j=0; j<n; j++) {
```

```
        scanf ("%d", &a[i][j]);
```

```
}
```

```
printf ("Enter values of b: ");
```

```
for (i=0; i<p; i++) {
```

```
    for (j=0; j<q; j++) {
```

```
        scanf ("%d", &b[i][j]);
```

```
}
```

```
printf ("Results is: ");
```

```

for( i=0; i < m; i++ ) {
    for( j=0; j < n; j++ ) {
        c[i][j] = 0;
        for( int k=0; k < n; k++ ) {
            c[i][j] += a[i][k] * b[k][j];
        }
        printf( "%d\t", c[i][j] );
    }
    printf( "\n" );
}

```

} off: Enter size of a: 2

Enter size of b: 1

3

Enter value of a: 1

2

Enter value of b: 1

2

3

Result is:

1 2 3

4 5 6