

We are now in the reefs of the sea of Cs infested by the dangerous BARRA CUDAs. Danger lurks everywhere!

Pay close attention to your Scuba Instructor. Even he could be prone to attacks!



Those who wish to C-leep better surface and go back to the shore, else...

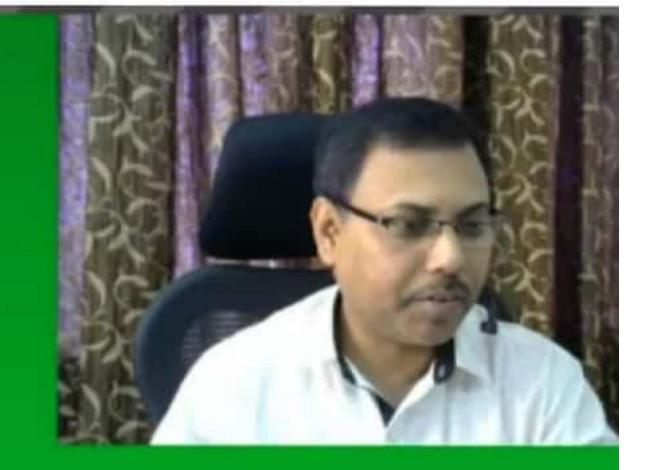
A Hand Trace Example

```
main()
int ans, val = 4;
  val = val + 1;
  val++;
  ++val;
  ans = 2 * val++;
  ans = ++val / 2;
  val--;
  --val;
  ans = --val * 2;
  ans = val -- / 3;
  return 0;
□ }
```

```
<u>val</u>
                 <u>ans</u>
             Garbage
5
6
7
                     14
8
9
8
7
                     12
6
```



Practice...



```
☐ // Given:
```

- \square int a = 1, b = 2, c = 3, x;
- // What is the value of x?
- $\square = ++a * b c-;$
- □ // What are the new values of a, b, and c?

$$3x = 2*2 - 3$$
 $= 4 - 3$
 $= 1$

$$a = 2$$
 $b = 2$

More Practice

What is the value of y?
What are the new values of a, b, c, and d?



$$y = 3/3 + 1*4$$

= 1 + 4
= 5

Practice with Assignmen Operators

$$i += j + k;$$
 $i = 6$

$$j *= k = m + 5;$$

$$k=9, j=18$$

$$k-=m_{\rm s}/=j*2;$$

$$m=1$$
, $k=2$



switch



The switch statement is a multi-way decision that tests whether an expression matches one of a number of constant integer values and branches accordingly.

```
switch (expression)
```

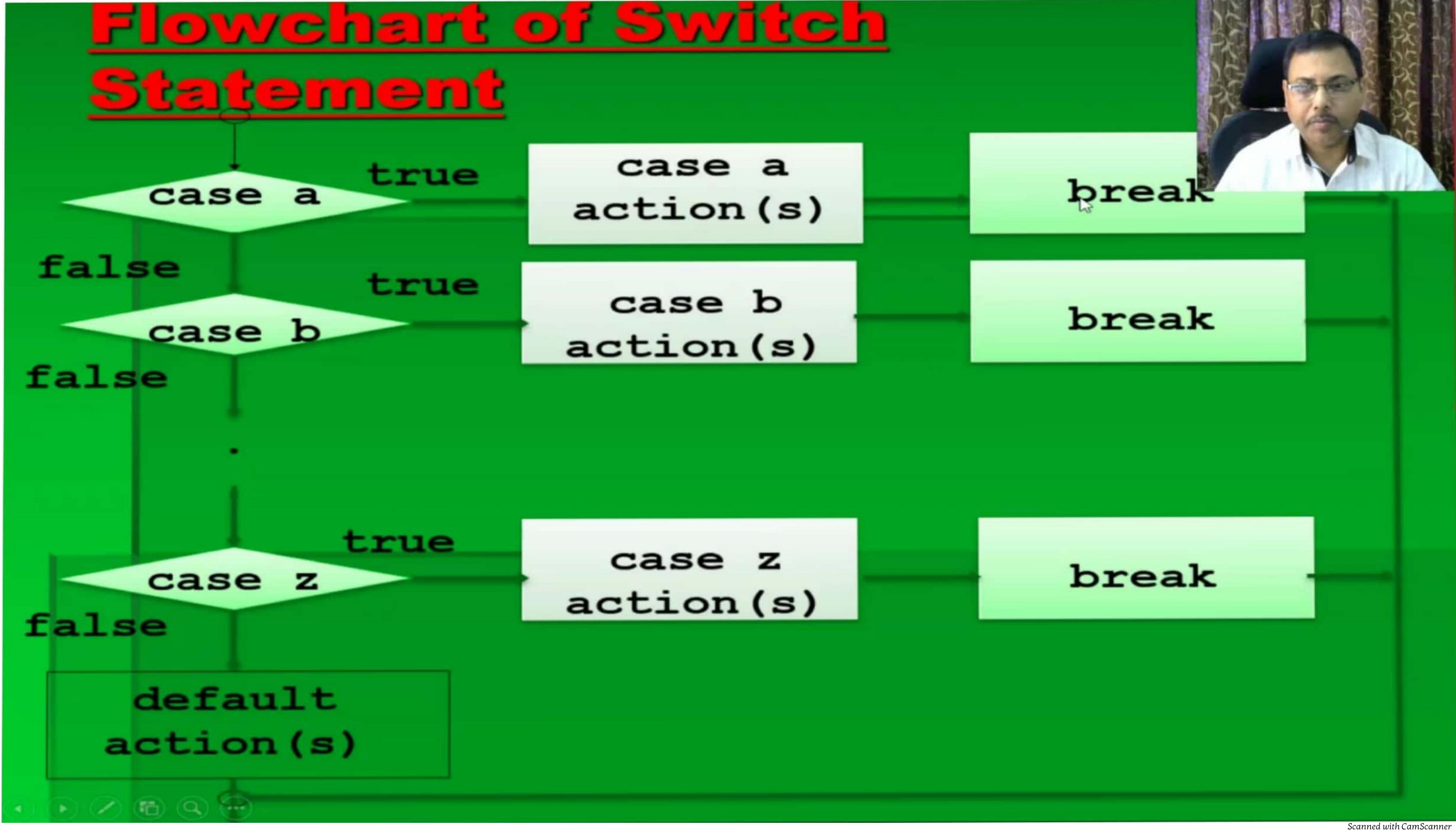
case const-expr: statements

case const-expr: statements

default : statements

The type of the expression should be either int or char.

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Multiway Switch Selection example: Simple Calculator



```
int main(){//simple calculator
int a=50, b=10, R;
char choice;
printf ("Enter choice");
 scanf("%c", &choice);
 switch (choice) {
 case 'a': R=a+b; printf("R=%d",R); break;
 case 's': R=a-b; printf("R=%d",R); break;
 case 'm': R=a*b; printf("R=%d",R); break;
 case 'd': R=a/b; printf("R=%d",R); break;
 default : printf("Wrong choice dear\n"); break;
return 0;
```

Multiway Switch Selection example



```
switch (choice) {
case 'A': // no break, work for both A & a
            // next statement automatically
            // get executed
 case 'a': R=a+b; printf("R=%d",R); break;
case 'S':
 case 's': R=a-b; printf("R=%d",R); break;
case 'M':
case 'm': R=a*b; printf("R=%d",R); break;
case 'D':
case 'd': R=a/b; printf("R=%d",R); break;
default : printf("Wrong choice dear"); break;
```

Range Multiway Switch Selection example



```
int x;
scanf("%d", &x);
switch (x) {
 case 1 ... 20:// 1 space three dots space 20
    printf("You entered >=1 and <=20");
    break;
 case 21 ... 30:
     printf("You entered >=21 and <=30");
    break;
 default
    printf("You entered < 1 and >31");
    break;
Syntax = case <low range> ... <high range>
```

switch



```
int j;
scanf ("%d", &j);
switch(j) {
    case 0: printf(" zero\n");
    case 1: printf(" one\n");
    case 2: printf(" two\n");
    default: printf(" other\n");
}

    $
    Oops! is this the o/p
```

switch simply transfers control once to the matching case.

breaking a switch



- break; /*this is a statement which can break a switch */
- break exits the switch block.
- break can be used with other control flow structures, but discussion is deferred.

Use break statements

```
int j;
scanf ("%d", &j);
                                      $./a.out
switch(j) {
                                      O
    case 0: printf(" zero\n");
                                      zero
          break;
                                      $./a.out
    case 1: printf(" one\n");
          break;
                                      one
    case 2: printf(" two\n");
                                      $./a.out
    default: printf(" other\n");
                                      two
                                      other
                                      $
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```



Switch



- default: statements /*optional*/
- The control is transferred to default, if it exists and none of the cases matches the expression value.
- Even if there are multiple statements to be executed in each case there is no need to use { and } (i.e., no need for a compound statement as in if-else).

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switch



You can also use char

```
values.
char c; c = getchar ();
switch (c)
{
    case 'a':
    case 'A': printf("apple"); break;
    case 'b':
    case 'B': printf("banana"); break;
}
```

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goto



goto label;

- /* label is similar identifier like a variable
 name */
- /* This transfers control to label: */