

Lecture – 7

Expression: An expression is the combination of functions, operators, commas, variables, identifiers etc. Ex: $x = 0$, $x ++$.

Statement: An expression as $x = 0$, $x ++$ or `printf(...)` becomes a statement when it is followed by a semicolon(`;`) as in

```
x ++ ; x =
0 ;
printf(...);
```

Braces { and } are syntactically equivalent to a single statement.

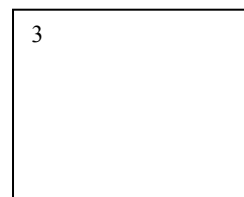
if ... else: if ... else statement is used to express decisions. Formally the syntax is :

```
if (expression)
    statement1
else
    statement2
```

Here the else part is optional. The expression inside if ... else statement expects a value. If the value is nonzero then it is true. If the value is 0 then it is false.

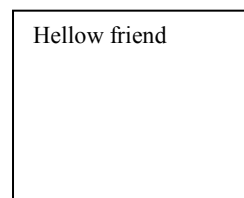
Example 1:

```
void main()
{
    int x ,y=0, a=2, b=3 ;
    if(y>0)
        x = a;
    else
        x = b;
    printf(“%d“,x);
}
```



Example 2:

```
void main()
{
    int x =1 ;
    if(x - -)
        printf(“Hellow”);
    printf(“ friend”);
}
```



Example 3:

```

void main()
{
    int x =1 ;
    if(x --)
        printf("Hellow");
    if(x ++ )
        printf(" everyone");
}

```



else ... if:

```

if(expression 1)
    statement 1
else if(expression 2)
    statement 2
else if(expression 3)
    statement 3
.
.
.
else
    statement n

```

else ... if checks its expression sequentially. When it found one expression is true then it will not check other expressions within that else ... if block.

Example 1:

```

void main() {
    int x =2 ;
    if(x --)
        printf("1"); else
        if(x --)
        printf("2"); else
        if(x --)
            printf("3");
    else
        printf("None");
    printf("%d",x);
}

```



Example 2:

```

void main(void)
{
    int x = 1;
    if(x --)
        printf("1");
    if(x --)
        printf("2");
    else if(x --)
        printf("3");
    if(x --)
        printf("4");
    printf("%d",x);
}

```

Handwritten red annotations: A circle around '1' in 'int x = 1;'. A sequence of '-1 -2 -3' with arrows pointing to the decrement operators in the if statements.

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Example 3:

```

void main(void)
{
    int x =0,y =1 ;
    if(x == 0)
        if(y == 2)
            printf("Hellow");
        else
            printf("Welcome");
    . printf("Nothing");
}

```

Handwritten red annotations: A bracket under 'if(x == 0)' and 'printf("Welcome");'. A line under 'printf("Nothing");'.

Nothing

Example 4:

```

void main(void)
{
    int x =0 ;
    if(x == 0)
        printf("Hellow\n");
    . printf("Something\n");
}

```

Handwritten red annotations: A bracket under 'if(x == 0)' and 'printf("Something\n");'.

Hellow
Something