

Fundamentals of Computing: Lecture 5

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Summary of previous lecture

Expressions

- ▶ Integer expressions.
- ▶ Floating point expressions `float` and `double`.
- ▶ Boolean expressions (or rather the lack of boolean expressions)

Assignment

- ▶ Assignment is also an expression
- ▶ Special assignments liket `i++` and `m *= 4`
- ▶ Problem with `==` and `=`.

Statement

Simple statement

A simple statement is just an expression followed by ; (semicolon).

eg

```
x = 100;
```

Statement

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eg

```
x = 100; f(x);
```

Statement

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A simple statement is just an expression followed by ; (semicolon).

eg

```
x = 100; f(x);
```

Compound statement

A sequence of statements enclosed in a pair of braces eg

```
{  
    foo = x;  
    bar = y;  
}
```

Control flow statements

Normally statements are executed in the sequence in which they are given.

What if we want to change ?

- ▶ Conditional statements
- ▶ Loop statements.

Conditional statement

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

Conditional statement

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

eg

```
if ( x > 42 ) {  
    printf("Value too large");  
}  
else {  
    printf("just right")  
}
```


While loop

```
while( expression ) statement
```

While loop

```
while( expression ) statement
```

Example summing numbers till n

```
sum = 0;
i = 0;
while( i < n )
{
    sum += i;
    i++;
}
printf("sum till %d is %d",n,sum);
```

For loop

```
for( initialisation ; condition; update) statement
```

eg

```
for(int i = 0; i <= n; i++)  
{  
    sum +=i;  
}  
printf("Sum till %d is %d",n,sum);
```

For loop

for(initialisation ; condition; update) statement

eg

```
for(int i = 0; i <= n; i++)
{
    sum +=i;
}
printf("Sum till %d is %d",n,sum);
```

```
for(int i = 0; i <= n; i++) sum +=i;
printf("Sum till %d is %d",n,sum);
```