Multiplexers

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Multiplexers are used to select one of the input bits to be carried over - AKA "decision making"

An example implementation of a MUX is as follows:

```
module mux(input [3:0] x, output y);
    always_comb
        case (SW)
            //...
        default: //...
    endcase
endmodule
```

Warning: Do not forget the *default* case. Unless all of the cases are covered, the synthesiser will create an **inferred latch**. Which is not good.

Variants can include **case_x** and **case_z**.

Alternatively, **if/else if/else** statements can also be used.
Alternatively, **logical operators** or **conditional statements** (using '?' operator) can also be used.

Note: put **case** and **if/else** statements in **always** blocks. Recall that always blocks can have sensitivity list. Thus stuff inside the always block can be configured to only trigger on positive edge, etc.