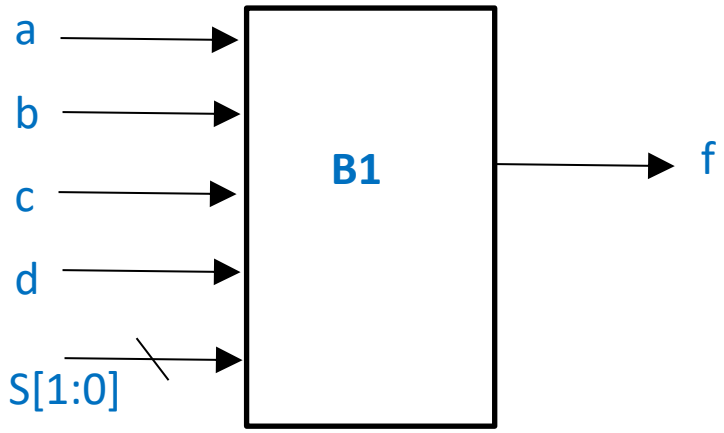
Tutorial 2 – B1

```
module B1 (a,b,c,d,S,f);
  input a,b,c,d;
  input [1:0] S;
  output f;

  assign f = S[1] ? (S[0] ? d : c) : (S[0] ? b : a);

endmodule
```

When s[1]==1  When s[1]==0




| S[1] | S[0] | f | |
|---|---|---|---|
| 0 | 0 | a | When s[0]==0 → f = a |
| 0 | 1 | b | When s[0]==1 → f = b |
| 1 | 0 | c | When s[0]==0 → f = c |
| 1 | 1 | d | When s[0]==1 → f = d |

When s[1]==0

When s[1]==1

**B1 is a 4-to-1 multiplexer.**