Design the circuit to implement the desired operation.

- There are two control inputs labeled C_1 and C_2, three data inputs labeled A, B, C and D, and two outputs labeled F_1 and F_2.
- There are four control conditions:
  - when $C_1 = 0$ and $C_2 = 0$, then output F_1 has A and output F_2 has $\bar{B}$;
  - when $C_1 = 0$ and $C_2 = 1$, then output F_1 has D, and output F_2 has B;
  - when $C_1 = 1$ and $C_2 = 0$, then output F_1 has C, and output F_2 has $\bar{D}$; and
  - when $C_1 = 1$ and $C_2 = 1$, then output F_1 has B, and output F_2 has D.

Each input is supplied on a single wire, as shown below. If you need them to go to multiple locations you must explicitly show the wiring.

The only components permitted are one 2-to-4 line decoder and no more than eight tri-state buffers (any of the four types covered in Lecture 15).