NAME-RAVI PRAKASH

Exp 1: Simulate to elaborate operation of multiple access techniques for CDMA.

Codes:

```
clc; clear;

c1 = [1, 1, 1, 1];
c2 = [1, -1, 1, -1];
c3 = [1, 1, -1, -1];
c4 = [1, -1, -1, 1];

disp('Enter the data bits:');
d1 = input('Enter D1: ');
d2 = input('Enter D2: ');
d3 = input('Enter D3: ');
d4 = input('Enter D4: ');

r1 = c1 .* d1;
r2 = c2 .* d2;
r3 = c3 .* d3;
r4 = c4 .* d4;

resultant_channel = r1 + r2 + r3 + r4;
disp('Resultant Channel:');
disp(resultant_channel);

channel = input('Enter the station to listen for C1=1, C2=2, C3=3, C4=4: ');

if channel == 1 then
    rc = c1;
elseif channel == 2 then
    rc = c2;
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    elseif channel == 3 then
        rc = c3;
    elseif channel == 4 then
        rc = c4;
    end

    inner_product = resultant_channel .* rc;
    disp('Inner Product:');
    disp(inner_product);

    data = sum(inner_product) / length(inner_product);
    disp('Data bit that was sent:');
    disp(data);
```

Output:

```
  "Enter the data bits:"
Enter D1: 1

Enter D2: -1

Enter D3: -1

Enter D4: 1


  "Resultant Channel:"

   0.   0.   0.   4.
Enter the station to listen for C1=1, C2=2, C3=3, C4=4: 2


  "Inner Product:"

   0.   0.   0.  -4.

  "Data bit that was sent:"

  -1.
```