```
% Name (first and last)
% CSC 2262
% cs2262xx
% Sample 9b
[xd  yd] = textread('sample9a.dat');
n = length(xd);
color = ['k', 'r', 'b', 'g', 'k', 'm', 'c', 'k'];
figure(1);
hold on;
box on;
for(k = 2:n-1)
    xd3 = [ xd(k-1)  xd(k)  xd(k+1) ];
    yd3 = [ yd(k-1)  yd(k)  yd(k+1) ];
    c2 = polyfit( xd3, yd3, 2 );
    x = xd(k-1) : .001 : xd(k+1);
    y2 = polyval( c2, x );
    plot( x, y2, color(k), xd, yd, 'ko' );
    axis([0  10  1  13]);
    set(gca,'xtick',0:10);
    set(gca,'ytick',1:13);
    xlabel('x');
    ylabel('y');
    title('Fitted 2nd Order Polynomials');
end
figure(2);
hold on;
box on;
for(k = 3:n-2)
    xd5 = [ xd(k-2)  xd(k-1)  xd(k)  xd(k+1)  xd(k+2) ];
    yd5 = [ yd(k-2)  yd(k-1)  yd(k)  yd(k+1)  yd(k+2) ];
    c4 = polyfit( xd5, yd5, 4 );
    x = xd(k-2) : .001 : xd(k+2);
    y4 = polyval( c4, x );
    plot( x, y4, color(k), xd, yd, 'ko' );
    axis([0  10  0  13]);
    set(gca,'xtick',0:10);
    set(gca,'ytick',0:13);
    xlabel('x');
    ylabel('y');
    title('Fitted 4th Order Polynomials');
end
```

```
figure(3);
hold on;
box on;
for(k = 4:n-3)
    xd7=[xd(k-3) xd(k-2) xd(k-1) xd(k) xd(k+1) xd(k+2) xd(k+3)];
    yd7=[yd(k-3) yd(k-2) yd(k-1) yd(k) yd(k+1) yd(k+2) yd(k+3)];
    c6 = polyfit( xd7, yd7, 6 );
    x = xd(k-3) : .001 : xd(k+3);
    y6 = polyval( c6, x );
    plot( x, y6, color(k), xd, yd, 'ko' );
    axis([0  10  -4  18]);
    set(gca,'xtick',0:10);
    set(gca,'ytick',-4:2:18);
    xlabel('x');
    ylabel('y');
    title('Fitted 6th Order Polynomials');
end
```