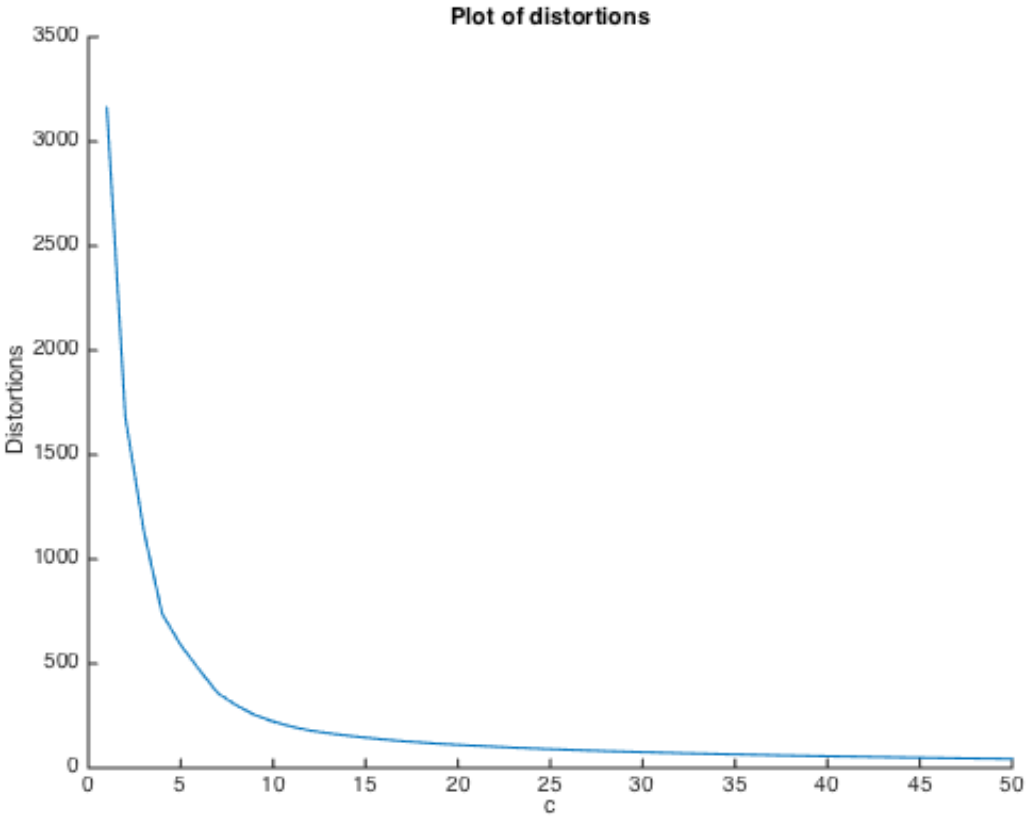
Part B

```
clear; close all;
load('puppy.mat');

m = size(puppy,1);
n = size(puppy,2);
[U,S,V] = svd(puppy,'econ');

for c = 1:50
   % Does the rank c approximation to A
   Uc = U(:,1:c);
   Sc = S(1:c,1:c);
   Vc = V(:,1:c);
   Ac = Uc*Sc*Vc';

   % Computes the Frobenius Norm
   sum = 0;
   for i = 1:m
      for j = 1:n
          sum = sum + abs(puppy(i,j) - Ac(i,j))^2;
      end
   end
   dst(c) = sum;

end

figure; hold
plot(dst);
title('Plot of distortions');
xlabel('c');
ylabel('Distortions');
opt = max(dst(find(dst < 100)));
disp(['The smallest c which results in a distortion less than 100 is 23']);
figure;
imshow(U(:,1:23)*S(1:23,1:23)*V(:,1:23)');
```

```
Current plot held
The smallest c which results in a distortion less than 100 is 23
```



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