```
while ~converged
    %%
    % Update assignments
    for k = 1:K
        di(:,k) = sum((X - repmat(cluster_means(k,:),N,1)).^2,2);
    end
    old_assignments = cluster_assignments;
    cluster_assignments = (di == repmat(min(di,[],2),1,K));

    % Update means
    for k = 1:K
        if sum(cluster_assignments(:,k))==0
            % This cluster is empty, randomise it
            cluster_means(k,:) = rand(1,2)*10-5;
        else
            cluster_means(k,:) = mean(X(cluster_assignments(:,k),:),1);
        end
    end

   if sum(sum(old_assignments~=cluster_assignments))==0
        converged = 1;
   end

end
```