**Figure 3 - Pseudo code for Pro-PAM algorithm**

**Input:** A sample $S$ of the training set $D$; $S = \{O_h\}_{h=1..m}$; $m$ is the size of $S$

1. Select $K$ objects arbitrarily from $S$: $R_i$ ($i \in [1..K]$);

2. For each pair of non-selected object $O_h$ in $S$ and selected object $R_i$ do
   - Calculate the total score $TS_{ih}$;

3. Select the maximal $TS_{ih}$: $MaxTS_{ih}$, and mark the corresponding objects $R_i$ and $O_h$;

4. If $MaxTS_{ih} > 0$ then
   
   $R_i = O_h$;
   
   Go back to Step 2;

   Else

   For each $O_h \in S$ do
   
   - Compute the similarity score of $O_h$ with each centroid $R_i$ ($i \in [1..K]$), using Smith Waterman algorithm;
   
   - Assign $O_h$ to the cluster with the nearest $R_i$;

   End

**Output:** BestSets; BestSets is the best partition of $S$ into $K$ clusters; each cluster is defined by a medoid $R_i$