PHEIO, A NOVEL PHYLOGENETIC EDITOR TO ADD PHYLOGENETIC RELATIONSHIPS TO NCBI TAXONOMY TREE

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We developed PHEIO (PHylogenetic EdItOr), a visual phylogenetic tree editor. PHEIO is developed in Java and uses MySQL as its database. PHEIO loads NCBI taxonomy database into a local server and allows the user to create and edit taxon groups, thus turning taxonomy relationships into phylogenetic ones. PHEIO can read input files containing a list of taxon names and traces the path back to the root for each taxon, than it mounts and shows a user-friendly graphical phylogenenic tree. PHEIO also allows the users to create their own taxons in PHEIO database. PHEIO lets the user to expand a tree branch, allowing one to insert into the visible tree all the child nodes of that specific branch. PHEIO also allows the user to remove a node from the visible tree. When the user selects a taxon in the visible tree, PHEIO shows information about that taxon, such as scientific name, rank, tax id, user observations and the distance of a node to the tree root. PHEIO also provides a taxon search system. Finally, PHEIO has a user registry system, so different users can access the program and register their activities. Bacterial evolutionary trees were used as a model. In conclusion, the user friendly interface combined with a powerful database allows one to apply phylogenetic relationships to automated evolutionary analysis.