

Lab 9 - Needleman

start

↓

open reference file, if stream + Open-File + Reference

↓

Open comparison file, if stream + Open-File + ComparisonFile

↓

read id + sequence from reference

↓
convert sequence to protein sequence

↓

while (program can read comparison id/sequence) {

 convert comparison sequence to protein sequence

 ↓

 call Needleman_align

 create - comparison

 print - comparison

 }

end/main();

Lab 9 - anshankeshi Functions

Above

```

if (row-1) >= 0 > yes return [row-1, col]
    |
    | no
else return -1 * (col+1)
    
```

Left

```

if (col-1) >= 0 > yes return [row, col-1]
    |
    | no
else return -1 * (row+1)
    
```

Above left

```

if (row-1) >= 0 and (col-1) >= 0 > return [row-1, col-1]
else if (row == 0) > return -1 * row
    |
    |
else > return -1 * col
    
```

Open file

```

if if from command Open file then file = if stream & command
else > file = file for in file
    
```

Got id and sequence

```

if new id & old id > id
    |
    |
else > id & sequence are changed, return
    
```