Github user name-lakshyamittal
Repositories name- question-1
 File Name- 45562563LakshyaOLQ2

Q12

A)

Command: ubuntu@ip-172-31-23-209:~$ curl -O https://www.staff.hs-mittweida.de/~wuenschi/data/media/compbiolbook/chapter-11-regex--structure.pdb

```
Output:  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                         Dload  Upload   Total   Spent    Left  Speed
100  1140  100  1140    0      0    545      0  0:00:02  0:00:02 --:--:--   545
```

I have used the curl -O command to download the chapter-11-regex—structure.pdb file into my AWS account.

Command:ubuntu@ip-172-31-23-209:~$ sed 's/Beisel/Weisel/' chapter-11-regex--structure.pdb

```
Output: HEADER  Hydrogenase                          23-Mar-99   1CFZ
COMPND  Hydrogenase Maturating Endopeptidase Hybd From
SOURCE  ORGANISM_SCIENTIFIC: Escherichia coli
AUTHOR  Fritsche, Paschos, Weisel, Boeck & Huber
REMARK NCBI PDB FORMAT VERSION 5.0
SEQRES 1 A   162   MET ARG ILE LEU VAL LEU GLY VAL GLY ASN
SEQRES 2 A   162   THR ASP GLU ALA ILE GLY VAL ARG ILE VAL
SEQRES 3 A   162   GLU GLN ARG TYR ILE LEU PRO ASP TYR VAL
SEQRES 4 A   162   ASP GLY GLY THR ALA GLY MET GLU LEU LEU
HELIX  1 hel ILE A   18   GLN A   28
HELIX  2 hel PRO A   92   THR A  107
HELIX  3 hel ILE A  138   SER A  152
SHEET  1 str ARG A    2   ASN A  10
SHEET  2 str ARG A   29   LEU A  32
SHEET  3 str TYR A   35   THR A  43
ATOM 1   C    MET A 1 48.865   25.394   51.393  1.00 54.58 C
ATOM 2   CA   MET A 1 49.879   24.359   50.932  1.00 59.61 C
ATOM 3   CB   MET A 1 49.248   23.457   49.877  1.00 62.37 C
ATOM 4   CE   MET A 1 51.349   24.403   47.765  1.00 71.39 C
ATOM 5   CG   MET A 1 48.708   24.106   48.629  1.00 66.70 C
ATOM 6   N    MET A 1 50.347   23.578   52.116  1.00 62.03 N
ATOM 7   O    MET A 1 47.875   25.011   52.020  1.00 54.99 O
ATOM 8   SD   MET A 1 49.731   23.948   47.163  1.00 77.15 S
```

B)

Command:ubuntu@ip-172-31-23-209:~$ sed '1,3d' chapter-11-regex--structure.pdb

```
Output:AUTHOR  Fritsche, Paschos, Beisel, Boeck & Huber
REMARK NCBI PDB FORMAT VERSION 5.0
SEQRES 1 A   162   MET ARG ILE LEU VAL LEU GLY VAL GLY ASN
SEQRES 2 A   162   THR ASP GLU ALA ILE GLY VAL ARG ILE VAL
SEQRES 3 A   162   GLU GLN ARG TYR ILE LEU PRO ASP TYR VAL
SEQRES 4 A   162   ASP GLY GLY THR ALA GLY MET GLU LEU LEU
HELIX  1 hel ILE A   18   GLN A   28
HELIX  2 hel PRO A   92   THR A  107
HELIX  3 hel ILE A  138   SER A  152
SHEET  1 str ARG A    2   ASN A  10
SHEET  2 str ARG A   29   LEU A  32
SHEET  3 str TYR A   35   THR A  43
ATOM 1   C    MET A 1 48.865   25.394   51.393  1.00 54.58 C
ATOM 2   CA   MET A 1 49.879   24.359   50.932  1.00 59.61 C
ATOM 3   CB   MET A 1 49.248   23.457   49.877  1.00 62.37 C
ATOM 4   CE   MET A 1 51.349   24.403   47.765  1.00 71.39 C
ATOM 5   CG   MET A 1 48.708   24.106   48.629  1.00 66.70 C
ATOM 6   N    MET A 1 50.347   23.578   52.116  1.00 62.03 N
ATOM 7   O    MET A 1 47.875   25.011   52.020  1.00 54.99 O
```

```
ATOM 8  SD  MET A 1 49.731  23.948  47.163  1.00 77.15 S
```

C)

Command:ubuntu@ip-172-31-23-209:~$ sed -n '5,10p' chapter-11-regex--structure.pdb

```
Output:REMARK NCBI PDB FORMAT VERSION 5.0
SEQRES 1 A   162   MET ARG ILE LEU VAL LEU GLY VAL GLY ASN
SEQRES 2 A   162   THR ASP GLU ALA ILE GLY VAL ARG ILE VAL
SEQRES 3 A   162   GLU GLN ARG TYR ILE LEU PRO ASP TYR VAL
SEQRES 4 A   162   ASP GLY GLY THR ALA GLY MET GLU LEU LEU
HELIX  1 hel ILE A   18  GLN A   28
```

D)

Command:ubuntu@ip-172-31-23-209:~$ sed ' /MET/d' chapter-11-regex--structure.pdb

```
Output:HEADER  Hydrogenase                        23-Mar-99   1CFZ
COMPND  Hydrogenase Maturating Endopeptidase Hybd From
SOURCE  ORGANISM_SCIENTIFIC: Escherichia coli
AUTHOR  Fritsche, Paschos, Beisel, Boeck & Huber
REMARK NCBI PDB FORMAT VERSION 5.0
SEQRES 2 A   162   THR ASP GLU ALA ILE GLY VAL ARG ILE VAL
SEQRES 3 A   162   GLU GLN ARG TYR ILE LEU PRO ASP TYR VAL
HELIX  1 hel ILE A   18  GLN A   28
HELIX  2 hel PRO A   92  THR A  107
HELIX  3 hel ILE A  138  SER A  152
SHEET  1 str ARG A    2  ASN A  10
SHEET  2 str ARG A   29  LEU A  32
SHEET  3 str TYR A   35  THR A  43
```

E)

Command:ubuntu@ip-172-31-23-209:~$ sed -n ' /HELIX.*ILE/p' chapter-11-regex--structure.pdb

```
Output:HELIX  1 hel ILE A   18  GLN A   28
HELIX  3 hel ILE A  138  SER A  152
```

F)

Command:ubuntu@ip-172-31-23-209:~$ sed -n ' /HELIX.*ILE/p' chapter-11-regex--structure.pdb

```
Output:HELIX  1 hel ILE A   18  GLN A   28
HELIX  3 hel ILE A  138  SER A  152
ubuntu@ip-172-31-23-209:~$ sed ' /^H/s/$/***/' chapter-11-regex--structure.pdb
HEADER  Hydrogenase                        23-Mar-99   1CFZ***
COMPND  Hydrogenase Maturating Endopeptidase Hybd From
SOURCE  ORGANISM_SCIENTIFIC: Escherichia coli
AUTHOR  Fritsche, Paschos, Beisel, Boeck & Huber
REMARK NCBI PDB FORMAT VERSION 5.0
SEQRES 1 A   162   MET ARG ILE LEU VAL LEU GLY VAL GLY ASN
SEQRES 2 A   162   THR ASP GLU ALA ILE GLY VAL ARG ILE VAL
SEQRES 3 A   162   GLU GLN ARG TYR ILE LEU PRO ASP TYR VAL
SEQRES 4 A   162   ASP GLY GLY THR ALA GLY MET GLU LEU LEU
HELIX  1 hel ILE A   18  GLN A   28***
HELIX  2 hel PRO A   92  THR A  107***
HELIX  3 hel ILE A  138  SER A  152***
SHEET  1 str ARG A    2  ASN A  10
SHEET  2 str ARG A   29  LEU A  32
SHEET  3 str TYR A   35  THR A  43
ATOM 1  C   MET A 1 48.865  25.394  51.393  1.00 54.58 C
ATOM 2  CA  MET A 1 49.879  24.359  50.932  1.00 59.61 C
ATOM 3  CB  MET A 1 49.248  23.457  49.877  1.00 62.37 C
ATOM 4  CE  MET A 1 51.349  24.403  47.765  1.00 71.39 C
ATOM 5  CG  MET A 1 48.708  24.106  48.629  1.00 66.70 C
ATOM 6  N   MET A 1 50.347  23.578  52.116  1.00 62.03 N
ATOM 7  O   MET A 1 47.875  25.011  52.020  1.00 54.99 O
ATOM 8  SD  MET A 1 49.731  23.948  47.163  1.00 77.15 S
```

G)

Command:ubuntu@ip-172-31-23-209:~$ sed ' /SEQRES/s/^.*$/SEQ/' chapter-11-regex--structure.pdb

Output:HEADER Hydrogenase   23-Mar-99   1CFZ
COMPND Hydrogenase Maturating Endopeptidase Hybd From
SOURCE ORGANISM_SCIENTIFIC: Escherichia coli
AUTHOR Fritsche, Paschos, Beisel, Boeck & Huber
REMARK NCBI PDB FORMAT VERSION 5.0
SEQ
SEQ
SEQ
SEQ
HELIX 1 hel ILE A   18 GLN A   28
HELIX 2 hel PRO A   92 THR A 107
HELIX 3 hel ILE A 138 SER A 152
SHEET 1 str ARG A   2 ASN A   10
SHEET 2 str ARG A   29 LEU A   32
SHEET 3 str TYR A   35 THR A   43
ATOM 1 C   MET A 1 48.865 25.394 51.393 1.00 54.58 C
ATOM 2 CA   MET A 1 49.879 24.359 50.932 1.00 59.61 C
ATOM 3 CB   MET A 1 49.248 23.457 49.877 1.00 62.37 C
ATOM 4 CE   MET A 1 51.349 24.403 47.765 1.00 71.39 C
ATOM 5 CG   MET A 1 48.708 24.106 48.629 1.00 66.70 C
ATOM 6 N   MET A 1 50.347 23.578 52.116 1.00 62.03 N
ATOM 7 O   MET A 1 47.875 25.011 52.020 1.00 54.99 O
ATOM 8 SD   MET A 1 49.731 23.948 47.163 1.00 77.15 S

H)

Command:ubuntu@ip-172-31-23-209:~$ curl -O https://ilearn.mq.edu.au/pluginfile.php/5698318/mod_resource/content/1/jabberwocky.txt

Output: % Total   % Received % Xferd Average Speed   Time   Time   Time Current
                                     Dload Upload   Total   Spent   Left Speed
100 58/1m64   0 5864   0   0   9613   0 --:--:-- --:--:-- --:--:-- 9597

Command:ubuntu@ip-172-31-23-209:~$ sed ' /^$/d' jabberwocky.txt

Output:<!DOCTYPE html>
<html lang="en" xml:lang="en">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" /><script
type="text/javascript">window.NREUM||(NREUM={}),__nr_require=function(e,n,t){function
r(t){if(!n[t]){var o=n[t]={exports:{}};e[t][0].call(o.exports,function(n){var
o=e[t][1][n];return r(o||n)},o,o.exports)}return n[t].exports}if("function"==typeof
__nr_require)return __nr_require;for(var o=0;o<t.length;o++)r(t[o]);return
r}({1:[function(e,n,t){function r(){}function o(e,n,t){return function(){return
i(e,[c.now()].concat(u(arguments)),n?null:this,t),n?void 0:this}}var
i=e("handle"),a=e(3),u=e(4),f=e("ee").get("tracer"),c=e("loader"),s=NREUM;"undefined"=
=typeof window.newrelic&&(newrelic=s);var
p=["setPageViewName","setCustomAttribute","setErrorHandler","finished","addToTrace","i
nlineHit","addRelease"],d="api-",l=d+"ixn-
";a(p,function(e,n){s[n]=o(d+n,!0,"api")}),s.addPageAction=o(d+"addPageAction",!0),s.s
etCurrentRouteName=o(d+"routeName",!0),n.exports=newrelic,s.interaction=function(){ret
urn(new r).get()};var m=r.prototype={createTracer:function(e,n){var
t={},r=this,o="function"==typeof n;return
i(l+"tracer",[c.now(),e,t],r),function(){if(f.emit((o?"":"no-")+"fn-
start",[c.now(),r,o],t),o)try{return n.apply(this,arguments)}catch(e){throw
f.emit("fn-err",[arguments,this,e],t),e}finally{f.emit("fn-
end",[c.now()],t)}}}}};a("actionText,setName,setAttribute,save,ignore,onEnd,getContext,
end,get".split(","),function(e,n){m[n]=o(l+n)}),newrelic.noticeError=function(e,n){"st
ring"==typeof e&&(e=new
Error(e)),i("err",[e,c.now(),!1,n])}},{}],2:[function(e,n,t){function
r(e,n){if(!o)return!1;if(e!==o)return!1;if(!n)return!0;if(!i)return!1;for(var
t=i.split("."),r=n.split("."),a=0;a<r.length;a++)if(r[a]!==t[a])return!1;return!0}var
o=null,i=null,a=/Version\/(\S+)\s+Safari/;if(navigator.userAgent){var
u=navigator.userAgent,f=u.match(a);f&&u.indexOf("Chrome")===-
1&&u.indexOf("Chromium")===-
1&&(o="Safari",i=f[1])}n.exports={agent:o,version:i,match:r}},{}],3:[function(e,n,t){f
unction r(e,n){var t=[],r="",i=0;for(r in e)o.call(e,r)&&(t[i]=n(r,e[r]),i+=1);return
t}var o=Object.prototype.hasOwnProperty;n.exports=r},{}],4:[function(e,n,t){function
r(e,n,t){n||(n=0),"undefined"==typeof t&&(t=e?e.length:0);for(var r=-1,o=t-

n||0,i=Array(o<0?0:o);++r<o;)i[r]=e[n+r];return
i}n.exports=r},{}],5:[function(e,n,t){n.exports={exists:"undefined"!=typeof
window.performance&&window.performance.timing&&"undefined"!=typeof
window.performance.timing.navigationStart}},{}],ee:[function(e,n,t){function
r(){}function o(e){function n(e){return e&&e instanceof r?e:e?f(e,u,i):i()}function
t(t,r,o,i){if(!d.aborted||i){e&&e(t,r,o);for(var
a=n(o),u=v(t),f=u.length,c=0;c<f;c++)u[c].apply(a,r);var p=s[y[t]];return
p&&p.push([b,t,r,a]),a}}function l(e,n){h[e]=v(e).concat(n)}function m(e,n){var
t=h[e];if(t)for(var r=0;r<t.length;r++)t[r]===n&&t.splice(r,1)}function v(e){return
h[e]|||[]}function g(e){return p[e]=p[e]||o(t)}function
w(e,n){c(e,function(e,t){n=n||"feature",y[t]=n,n in s||(s[n]=[])})}var
h={},y={},b={on:l,addEventListener:l,removeEventListener:m,emit:t,get:g,listeners:v,co
ntext:n,buffer:w,abort:a,aborted:!1};return b}function i(){return new r}function
a(){(s.api||s.feature)&&(d.aborted=!0,s=d.backlog={})}var
u="nr@context",f=e("gos"),c=e(3),s={},p={},d=n.exports=o();d.backlog=s},{}],gos:[funct
ion(e,n,t){function r(e,n,t){if(o.call(e,n))return e[n];var
r=t();if(Object.defineProperty&&Object.keys)try{return
Object.defineProperty(e,n,{value:r,writable:!0,enumerable:!1}),r}catch(i){}return
e[n]=r,r}var
o=Object.prototype.hasOwnProperty;n.exports=r},{}],handle:[function(e,n,t){function
r(e,n,t,r){o.buffer([e],r),o.emit(e,n,t)}var
o=e("ee").get("handle");n.exports=r,r.ee=o},{}],id:[function(e,n,t){function r(e){var
n=typeof e;return!e||"object"!==n&&"function"!==n?-
1:e===window?0:a(e,i,function(){return o++})}var
o=1,i="nr@id",a=e("gos");n.exports=r},{}],loader:[function(e,n,t){function
r(){if(!E++){var
e=x.info=NREUM.info,n=l.getElementsByTagName("script")[0];if(setTimeout(s.abort,3e4),!
(e&&e.licenseKey&&e.applicationID&&n))return
s.abort();c(y,function(n,t){e[n]||(e[n]=t)}),f("mark",["onload",a()+x.offset],null,"ap
i");var
t=l.createElement("script");t.src="https://"+e.agent,n.parentNode.insertBefore(t,n)}}f
unction o(){"complete"===l.readyState&&i()}function
i(){f("mark",["domContent",a()+x.offset],null,"api")}function a(){return
O.exists&&performance.now?Math.round(performance.now()):(u=Math.max((new
Date).getTime(),u))-x.offset}var u=(new
Date).getTime(),f=e("handle"),c=e(3),s=e("ee"),p=e(2),d=window,l=d.document,m="addEven
tListener",v="attachEvent",g=d.XMLHttpRequest,w=g&&g.prototype;NREUM.o={ST:setTimeout,
SI:d.setImmediate,CT:clearTimeout,XHR:g,REQ:d.Request,EV:d.Event,PR:d.Promise,MO:d.Mut
ationObserver};var h=""+location,y={beacon:"bam.nr-data.net",errorBeacon:"bam.nr-
data.net",agent:"js-agent.newrelic.com/nr-
1123.min.js"},b=g&&w&&w[m]&&!/CriOS/.test(navigator.userAgent),x=n.exports={offset:u,n
ow:a,origin:h,features:{},xhrWrappable:b,userAgent:p};e(1),l[m]?(l[m]("DOMContentLoade
d",i,!1),d[m]("load",r,!1)):(l[v]("onreadystatechange",o),d[v]("onload",r)),f("mark",[
"firstbyte",u],null,"api");var E=0,O=e(5)},{}]},{},["loader"]);</script>
<title>Redirect</title>
</head><body><div style="margin-top: 3em; margin-left:auto; margin-right:auto; text-
align:center;">This page should automatically redirect. If nothing is happening please
use the continue link below.
<a
href="https://ilearn.mq.edu.au/login/index.php">Continue</div><script
type="text/javascript">window.NREUM||(NREUM={});NREUM.info={"beacon":"bam.nr-
data.net","licenseKey":"d6bb71fb66","applicationID":"3373525,105687326","transactionNa
me":"YVMHYkVQWkIAUERQDFgZMEReHkRdFFRZVwVfWgAYR1lE","queueTime":0,"applicationTime":79,
"atts":"TRQEFA1KSUw=","errorBeacon":"bam.nr-
data.net","agent":""}</script></body></html>u