

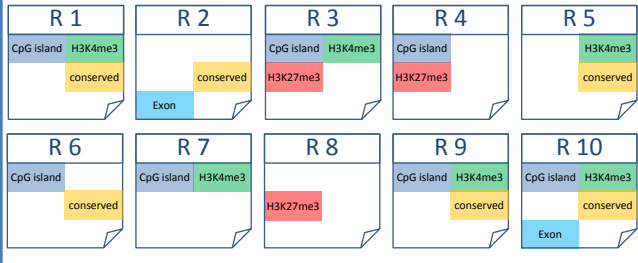
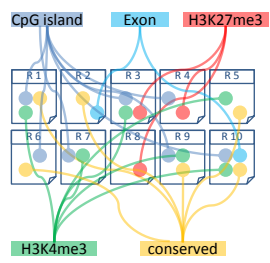
(a) User interface

Middleware

Backend

(b) Upload

R1 chromstart end
 R2 chromstart end
 R3 chromstart end
 .
 .
 .
 R10 chromstart end

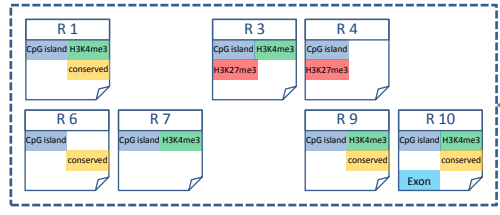


(c) Query: How many regions overlap with CpG islands?

Response: Seven regions overlap with CpG islands: R1, R3, R4, R6, R7, R9, R10

Query: overlap:CGI

```
<result>
<query>overlap:CGI</query>
<time unit="msecs">510</time>
<completions >
  <c dc="7">overlap:CGI</c>
</completions>
<hits total="7">
  <hit><title>R1</title></hit>
  <hit><title>R3</title></hit>
  <hit><title>R4</title></hit>
  <hit><title>R6</title></hit>
  <hit><title>R7</title></hit>
  <hit><title>R9</title></hit>
  <hit><title>R10</title></hit>
</hits>
</result>
```

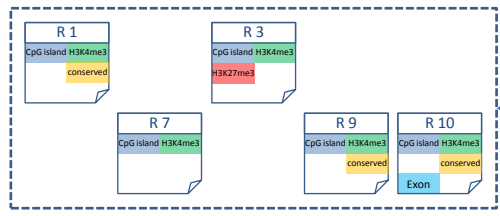


(d) Query: How many regions overlap with CpG islands and H3K4me3?

Response: Five regions overlap with CpG islands and H3K4me3 peaks: R1, R3, R7, R9 and R10

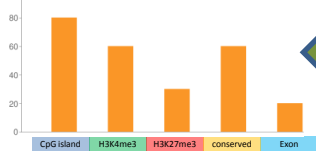
Query: overlap:CGI overlap:H3K4me3

```
<result>
<query>overlap:CGI
overlap:H3K4me3 </query>
<time unit="msecs">210</time>
<completions >
  <c dc="5">overlap:H3K4me3</c>
</completions>
<hits total="5">
  <hit><title>R1</title></hit>
  <hit><title>R3</title></hit>
  <hit><title>R7</title></hit>
  <hit><title>R9</title></hit>
  <hit><title>R10</title></hit>
</hits>
</result>
```



(e) Query: Which genome annotations do the regions overlap with?

Response:



Query: overlap:*

```
<result>
<query>overlap:*</query>
<time unit="msecs">310</time>
<completions >
  <c dc="7">overlap:CGI</c>
  <c dc="6">overlap:H3K4me3</c>
  <c dc="3">overlap:H3K27me3</c>
  <c dc="6">overlap:conserved</c>
  <c dc="2">overlap:exons</c>
</completions>
<hits total="10"></hits>
</result>
```

