**REPORT FOR THE FINAL PRACTICE**

**Basic level**

For the basic level we had to do four different endpoints: “/”, “/listSpecies”, “/karyotype” and “/chromosomeLength”. Now, I am going to test each endpoint. Please, note that the endpoint “/listSpecies” is tested twice because it has a limit parameter that will be taken into account as well.

/

Browser’s url: <http://127.0.0.1:8000/>

html code for the returned web page:

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8">

<title>Species and their genes</title>

</head>

<body style="background-color: springgreen;">

<p><h1>Species and their genes</h1>

<p><h2>- 1 -</h2>

<p>In this option, you can select a limited number for listing species:</p>

<p>Note that, if you do not write any limit, all the species will be sorted.</p>

<form action="/listSpecies" method="get">

<input type="text" size="2" name="limit">

<input type="submit" value="List species"><br>

Click here to get a response in json format:

<input type="checkbox" name="json" value="1">

</form>

<p><h2>- 2 -</h2>

<p>Now you can obtain the karyotype for a certain species:</p>

<form action="/karyotype" method="get">

<input type="text" size="10" name="specie">

<input type="submit" value="List the karyotype"><br>

Click here to get a response in json format:

<input type="checkbox" name="json" value="1">

</form>

<p><h2>- 3 -</h2>

<p>Get the length of a desired chromosome:</p>

<form action="/chromosomeLength" method="get">

<p>Species: </p>

<input type="text" size="10" name="specie"><br>

<p>Number of chromosome:</p>

<input type="text" size="2" name="chromo">

<input type="submit" value="Get the length"><br>

Click here to get a response in json format:

<input type="checkbox" name="json" value="1">

</form><br>

<p><h1>Human genes</h1>

<p><h2>- 1 -</h2>

<p>Write a human gene to obtain its sequence:</p>

<form action="/geneSeq" method="get">

<input type="text" size="10" name="gene">

<input type="submit" value="Obtain"><br>

Click here to get a response in json format:

<input type="checkbox" name="json" value="1">

</form>

<p><h2>- 2 -</h2>

<p>Write a human gene to obtain information about it:</p>

<p>(Start, end, length, ID and chromosome)</p>

<form action="/geneInfo" method="get">

<input type="text" size="10" name="gene">

<input type="submit" value="Obtain"><br>

Click here to get a response in json format:

<input type="checkbox" name="json" value="1">

</form>

<p><h2>- 3 -</h2>

<p>Write a human gene to obtain its total length and the percentage

of all its bases (A, C, G, T):</p>

<form action="/geneCal" method="get">

<input type="text" size="10" name="gene">

<input type="submit" value="Obtain"><br>

Click here to get a response in json format:

<input type="checkbox" name="json" value="1">

</form>

<p><h2>- 4 -</h2>

<p>Write a human chromosome and a start and ending point to get the names of the genes located between both points:</p>

<form action="/geneList" method="get">

<p>Chromosme:</p>

<input type="text" size="10" name="chromo">

<p>Starting point:</p>

<input type="text" size="7" name="start">

<p>Ending point:</p>

<input type="text" size="7" name="end">

<input type="submit" value="Obtain"><br>

Click here to get a response in json format:

<input type="checkbox" name="json" value="1">

</form>

</body>

</html>

/listSpecies

Browser’s url: <http://127.0.0.1:8000/listSpecies>

html code for the returned web page:

<html><title>All species - limit</title>

<body style="background-color: springgreen;"><h1>Limited list requested</h1>

<ol><li>Golden Hamster - mesocricetus\_auratus</li><li>Human - homo\_sapiens</li><li>Opossum - monodelphis\_domestica</li><li>Orange clownfish - amphiprion\_percula</li><li>Cod - gadus\_morhua</li><li>Hyrax - procavia\_capensis</li><li>Armadillo - dasypus\_novemcinctus</li><li>Ocean sunfish - mola\_mola</li><li>Mouse C57BL/6NJ - mus\_musculus\_c57bl6nj</li><li>Polar bear - ursus\_maritimus</li><li>Platypus - ornithorhynchus\_anatinus</li><li>Megabat - pteropus\_vampyrus</li><li>Turbot - scophthalmus\_maximus</li><li>Lesser hedgehog tenrec - echinops\_telfairi</li><li>Ma's night monkey - aotus\_nancymaae</li><li>Alpine marmot - marmota\_marmota\_marmota</li><li>Arctic ground squirrel - urocitellus\_parryii</li><li>Platyfish - xiphophorus\_maculatus</li><li>Japanese medaka HSOK - oryzias\_latipes\_hsok</li><li>Ballan wrasse - labrus\_bergylta</li><li>Northern pike - esox\_lucius</li><li>Lamprey - petromyzon\_marinus</li><li>Climbing perch - anabas\_testudineus</li><li>Chinese hamster CriGri - cricetulus\_griseus\_crigri</li><li>Zebra mbuna - maylandia\_zebra</li><li>Chinese hamster CHOK1GS - cricetulus\_griseus\_chok1gshd</li><li>Mongolian gerbil - meriones\_unguiculatus</li><li>American beaver - castor\_canadensis</li><li>Little spotted kiwi - apteryx\_owenii</li><li>Lyretail cichlid - neolamprologus\_brichardi</li><li>Monterrey platyfish - xiphophorus\_couchianus</li><li>Mouse WSB/EiJ - mus\_musculus\_wsbeij</li><li>Blue tit - cyanistes\_caeruleus</li><li>Bushbaby - otolemur\_garnettii</li><li>Mouse CBA/J - mus\_musculus\_cbaj</li><li>Goat - capra\_hircus</li><li>Golden snub-nosed monkey - rhinopithecus\_roxellana</li><li>Tongue sole - cynoglossus\_semilaevis</li><li>Pig-tailed macaque - macaca\_nemestrina</li><li>Shortfin molly - poecilia\_mexicana</li><li>Naked mole-rat female - heterocephalus\_glaber\_female</li><li>Cat - felis\_catus</li><li>Helmeted guineafowl - numida\_meleagris</li><li>Tiger - panthera\_tigris\_altaica</li><li>Leopard - panthera\_pardus</li><li>Sloth - choloepus\_hoffmanni</li><li>Daurian ground squirrel - spermophilus\_dauricus</li><li>Guppy - poecilia\_reticulata</li><li>Shrew mouse - mus\_pahari</li><li>Mouse Lemur - microcebus\_murinus</li><li>Eastern happy - astatotilapia\_calliptera</li><li>Alpaca - vicugna\_pacos</li><li>Drill - mandrillus\_leucophaeus</li><li>Dark-eyed junco - junco\_hyemalis</li><li>Wallaby - notamacropus\_eugenii</li><li>Cow - bos\_taurus</li><li>Golden-collared manakin - manacus\_vitellinus</li><li>Chimpanzee - pan\_troglodytes</li><li>Tasmanian devil - sarcophilus\_harrisii</li><li>Prairie vole - microtus\_ochrogaster</li><li>Spoon-billed sandpiper - calidris\_pygmaea</li><li>Red-bellied piranha - pygocentrus\_nattereri</li><li>Marmoset - callithrix\_jacchus</li><li>Rat - rattus\_norvegicus</li><li>C.savignyi - ciona\_savignyi</li><li>Lesser Egyptian jerboa - jaculus\_jaculus</li><li>Hedgehog - erinaceus\_europaeus</li><li>Bicolor damselfish - stegastes\_partitus</li><li>Swamp eel - monopterus\_albus</li><li>Tiger tail seahorse - hippocampus\_comes</li><li>Panda - ailuropoda\_melanoleuca</li><li>White-throated sparrow - zonotrichia\_albicollis</li><li>Stickleback - gasterosteus\_aculeatus</li><li>Western mosquitofish - gambusia\_affinis</li><li>Algerian mouse - mus\_spretus</li><li>Pig - sus\_scrofa</li><li>Burton's mouthbrooder - haplochromis\_burtoni</li><li>Agassiz's desert tortoise - gopherus\_agassizii</li><li>Bonobo - pan\_paniscus</li><li>Xenopus - xenopus\_tropicalis</li><li>Saccharomyces cerevisiae - saccharomyces\_cerevisiae</li><li>Mouse A/J - mus\_musculus\_aj</li><li>Mouse 129S1/SvImJ - mus\_musculus\_129s1svimj</li><li>Greater amberjack - seriola\_dumerili</li><li>Emu - dromaius\_novaehollandiae</li><li>Mexican tetra - astyanax\_mexicanus</li><li>C.intestinalis - ciona\_intestinalis</li><li>Gibbon - nomascus\_leucogenys</li><li>Steppe mouse - mus\_spicilegus</li><li>Abingdon island giant tortoise - chelonoidis\_abingdonii</li><li>Channel catfish - ictalurus\_punctatus</li><li>Capuchin - cebus\_capucinus</li><li>Long-tailed chinchilla - chinchilla\_lanigera</li><li>Mouse NOD/ShiLtJ - mus\_musculus\_nodshiltj</li><li>Angola colobus - colobus\_angolensis\_palliatus</li><li>Anole lizard - anolis\_carolinensis</li><li>Bengalese finch - lonchura\_striata\_domestica</li><li>Horse - equus\_caballus</li><li>Degu - octodon\_degus</li><li>Periophthalmus magnuspinnatus - periophthalmus\_magnuspinnatus</li><li>Mainland tiger snake - notechis\_scutatus</li><li>Drosophila melanogaster - drosophila\_melanogaster</li><li>Argentine black and white tegu - salvator\_merianae</li><li>Squirrel - ictidomys\_tridecemlineatus</li><li>Red fox - vulpes\_vulpes</li><li>Chinese hamster PICR - cricetulus\_griseus\_picr</li><li>Black snub-nosed monkey - rhinopithecus\_bieti</li><li>Mouse C3H/HeJ - mus\_musculus\_c3hhej</li><li>Mouse FVB/NJ - mus\_musculus\_fvbnj</li><li>Microbat - myotis\_lucifugus</li><li>Coelacanth - latimeria\_chalumnae</li><li>Japanese medaka HNI - oryzias\_latipes\_hni</li><li>Painted turtle - chrysemys\_picta\_bellii</li><li>Duck - anas\_platyrhynchos\_platyrhynchos</li><li>Japanese quail - coturnix\_japonica</li><li>Rabbit - oryctolagus\_cuniculus</li><li>Greater bamboo lemur - prolemur\_simus</li><li>Okarito brown kiwi - apteryx\_rowi</li><li>Wild yak - bos\_mutus</li><li>Mouse BALB/cJ - mus\_musculus\_balbcj</li><li>Elephant - loxodonta\_africana</li><li>Sheepshead minnow - cyprinodon\_variegatus</li><li>Midas cichlid - amphilophus\_citrinellus</li><li>Spiny chromis - acanthochromis\_polyacanthus</li><li>Tilapia - oreochromis\_niloticus</li><li>Shrew - sorex\_araneus</li><li>Paramormyrops kingsleyae - paramormyrops\_kingsleyae</li><li>Pika - ochotona\_princeps</li><li>Koala - phascolarctos\_cinereus</li><li>Crab-eating macaque - macaca\_fascicularis</li><li>Asian bonytongue - scleropages\_formosus</li><li>Tree Shrew - tupaia\_belangeri</li><li>Coquerel's sifaka - propithecus\_coquereli</li><li>Pink-footed goose - anser\_brachyrhynchus</li><li>Caenorhabditis elegans - caenorhabditis\_elegans</li><li>Mouse PWK/PhJ - mus\_musculus\_pwkphj</li><li>Dolphin - tursiops\_truncatus</li><li>Olive baboon - papio\_anubis</li><li>Ruff - calidris\_pugnax</li><li>Vervet-AGM - chlorocebus\_sabaeus</li><li>American bison - bison\_bison\_bison</li><li>Dog - canis\_familiaris</li><li>Mouse AKR/J - mus\_musculus\_akrj</li><li>Common canary - serinus\_canaria</li><li>Turkey - meleagris\_gallopavo</li><li>Donkey - equus\_asinus\_asinus</li><li>Ryukyu mouse - mus\_caroli</li><li>Chilean tinamou - nothoprocta\_perdicaria</li><li>Great spotted kiwi - apteryx\_haastii</li><li>Sooty mangabey - cercocebus\_atys</li><li>Naked mole-rat male - heterocephalus\_glaber\_male</li><li>Mouse - mus\_musculus</li><li>Clown anemonefish - amphiprion\_ocellaris</li><li>Great Tit - parus\_major</li><li>Damara mole rat - fukomys\_damarensis</li><li>Gelada - theropithecus\_gelada</li><li>Sheep - ovis\_aries</li><li>Yellowtail amberjack - seriola\_lalandi\_dorsalis</li><li>Central bearded dragon - pogona\_vitticeps</li><li>Indian medaka - oryzias\_melastigma</li><li>Mouse LP/J - mus\_musculus\_lpj</li><li>Gorilla - gorilla\_gorilla</li><li>American black bear - ursus\_americanus</li><li>Japanese medaka HdrR - oryzias\_latipes</li><li>Ugandan red Colobus - piliocolobus\_tephrosceles</li><li>Mouse DBA/2J - mus\_musculus\_dba2j</li><li>Brazilian guinea pig - cavia\_aperea</li><li>Fugu - takifugu\_rubripes</li><li>Zebrafish - danio\_rerio</li><li>Blue-crowned manakin - lepidothrix\_coronata</li><li>Hagfish - eptatretus\_burgeri</li><li>Zebra Finch - taeniopygia\_guttata</li><li>Guinea Pig - cavia\_porcellus</li><li>Orangutan - pongo\_abelii</li><li>Budgerigar - melopsittacus\_undulatus</li><li>Tarsier - carlito\_syrichta</li><li>Mummichog - fundulus\_heteroclitus</li><li>Macaque - macaca\_mulatta</li><li>Mouse CAST/EiJ - mus\_musculus\_casteij</li><li>Northern American deer mouse - peromyscus\_maniculatus\_bairdii</li><li>Kangaroo rat - dipodomys\_ordii</li><li>Dingo - canis\_lupus\_dingo</li><li>Zig-zag eel - mastacembelus\_armatus</li><li>Chinese softshell turtle - pelodiscus\_sinensis</li><li>Makobe Island cichlid - pundamilia\_nyererei</li><li>Chicken - gallus\_gallus</li><li>Flycatcher - ficedula\_albicollis</li><li>Mangrove rivulus - kryptolebias\_marmoratus</li><li>Mouse NZO/HlLtJ - mus\_musculus\_nzohlltj</li><li>Spotted gar - lepisosteus\_oculatus</li><li>American mink - neovison\_vison</li><li>Tuatara - sphenodon\_punctatus</li><li>Bolivian squirrel monkey - saimiri\_boliviensis\_boliviensis</li><li>Ferret - mustela\_putorius\_furo</li><li>Tetraodon - tetraodon\_nigroviridis</li><li>Amazon molly - poecilia\_formosa</li><li>Sailfin molly - poecilia\_latipinna</li><li>Upper Galilee mountains blind mole rat - nannospalax\_galili</li><li>Australian saltwater crocodile - crocodylus\_porosus</li></ol><a href = "http://127.0.0.1:8000/">Click here to return to the main page</a>

</body>

</html>

/listSpecies?limit=10

Browser’s url: <http://127.0.0.1:8000/listSpecies?limit=10>

html code for the returned web page:

<html><title>All species - limit</title>

<body style="background-color: springgreen;"><h1>Limited list requested</h1>

<ol><li>Mouse - mus\_musculus</li><li>Human - homo\_sapiens</li><li>Guinea Pig - cavia\_porcellus</li><li>Mouse CBA/J - mus\_musculus\_cbaj</li><li>Midas cichlid - amphilophus\_citrinellus</li><li>Anole lizard - anolis\_carolinensis</li><li>Capuchin - cebus\_capucinus</li><li>Ballan wrasse - labrus\_bergylta</li><li>Leopard - panthera\_pardus</li><li>Fugu - takifugu\_rubripes</li></ol><a href = "http://127.0.0.1:8000/">Click here to return to the main page</a>

</body>

</html>

/karyotype

Browser’s url: <http://127.0.0.1:8000/karyotype?specie=sheep>

html code for the returned web page:

<html><title>Karyotype</title>

<body style= "background-color: springgreen;"><h1>Karyotype requested</h1>

<ul><li>1</li><li>2</li><li>3</li><li>4</li><li>5</li><li>6</li><li>7</li><li>8</li><li>9</li><li>10</li><li>11</li><li>12</li><li>13</li><li>14</li><li>15</li><li>16</li><li>17</li><li>18</li><li>19</li><li>20</li><li>21</li><li>22</li><li>23</li><li>24</li><li>25</li><li>26</li><li>X</li><li>MT</li></ul><a href = "http://127.0.0.1:8000/">Click here to return to the main page</a></body>

</html>

/chromosomeLength

Browser’s url: <http://127.0.0.1:8000/chromosomeLength?specie=mouse&chromo=3>

html code for the returned web page:

<html><title>Length</title>

<body style = "background-color: springgreen;"><h1>Length</h1>

<p>The length of the requested chromosome is:</p><h2>160039680</h2>

<a href = "http://127.0.0.1:8000/">Click here to return to the main page</a>

</body></html>