

<!DOCTYPE html>

MT5763_Zatoichi/JackKnife.Rmd at main · lukerobins1/MT5763_Zatoichi

<meta name="google-site-verification" content="c1kuD-K2HIVF635lypcsWPoD4kilo5-jA_wBFyT4uMY">

<meta name="user-login" content="najmi050">

<meta name="viewport" content="width=device-width">

<meta name="description" content="MT5763 Group Project. Contribute to lukerobins1/MT5763_Zatoichi dev
<link rel="search" type="application/opensearchdescription+xml" href="/opensearch.xml" title="GitHub".
<link rel="fluid-icon" href="https://github.com/fluidicon.png" title="GitHub">
<meta property="fb:app_id" content="1401488693436528">
<meta name="apple-itunes-app" content="app-id=1477376905" />
<meta name="twitter:image:src" content="https://avatars.githubusercontent.com/u/91676743?s=400&v=4">
<meta property="og:image" content="https://avatars.githubusercontent.com/u/91676743?s=400&v=4" />

<link rel="assets" href="https://github.githubassets.com/">
<link rel="shared-web-socket" href="wss://alive.github.com/_sockets/u/92123280/ws?session=eyJ2IjoiVjM.
<link rel="shared-web-socket-src" href="/assets-cdn/worker/socket-worker-b87581f5816c.js">

<meta name="hostname" content="github.com">

<meta name="keyboard-shortcuts-preference" content="all">
<script type="application/json" id="memex_keyboard_shortcuts_preference">"all"</script>

<meta name="expected-hostname" content="github.com">

<meta name="enabled-features" content="TURBO_EXPERIMENT_RISKY,IMAGE_METRIC_TRACKING,GEOJSON_AZURE_MAPS".

<meta data-hydrostats="publish">

<link rel="canonical" href="https://github.com/lukerobins1/MT5763_Zatoichi/blob/main/Task%203%20-%20JackKnife.Rmd">

<div class="position-relative js-header-wrapper ">
<a href="#start-of-content" class="p-3 color-bg-accent-emphasis color-fg-on-emphasis show-on-focus js-

<span style="width: 0%;" data-view-component="true" class="Progress-item progress-pjax-loader-bar left-0

<script crossorigin="anonymous" defer="defer" type="application/javascript" src="https://github.githubassets.com/jsdelivr.min.js" data-view-component="true">

<header class="Header js-details-container Details px-3 px-md-4 px-lg-5 flex-wrap flex-md-nowrap">

<div class="Header-item mt-n1 mb-n1 d-none d-md-flex">


```

</div>

<div class="Header-item d-md-none">
  <button aria-label="Toggle navigation" aria-expanded="false" type="button" data-view-component="true">
<path fill-rule="evenodd" d="M1 2.75A.75.75 0 011.75 2h12.5a.75.75 0 10 1.5H1.75A.75.75 0 011 2.75zm0 1" data-bbox="111 154 1000 166">
<!-- '' --><!-- </textarea></xmp> --></option></form><form class="js-site-search-form" role="search" aria-label="Search" data-bbox="111 188 1000 200">
  <label class="form-control header-search-wrapper input-sm p-0 js-chromeless-input-container header-search-label" data-bbox="111 203 1000 215">
    <input type="text"
      class="form-control js-site-search-focus header-search-input jump-to-field js-jump-to-field js-site-search-input" data-bbox="111 218 1000 230">
      data-hotkey=s,/
      name="q"
      data-test-selector="nav-search-input"
      placeholder="Search or jump to..."
      data-unscoped-placeholder="Search or jump to..."
      data-scoped-placeholder="Search or jump to..."
      autocapitalize="off"
      role="combobox"
      aria-haspopup="listbox"
      aria-expanded="false"
      aria-autocomplete="list"
      aria-controls="jump-to-results"
      aria-label="Search or jump to..."
      data-jump-to-suggestions-path="/_graphql/GetSuggestedNavigationDestinations"
      spellcheck="false"
      autocomplete="off"
    >
    <input type="hidden" value="b_E34xzC0jkTK9tev5U728IkWH_5_uNywzesub-B4J6PlUulZ-R6953kRd-nlyV-ZUhf3JV" data-bbox="111 505 1000 517">
    <input type="hidden" class="js-site-search-type-field" name="type" >
      <svg xmlns="http://www.w3.org/2000/svg" width="22" height="20" aria-hidden="true" class="mr-1 h-2" data-bbox="111 535 1000 547">

  <div class="Box position-absolute overflow-hidden d-none jump-to-suggestions js-jump-to-suggestion" data-bbox="111 580 1000 592">

    <svg title="Repository" aria-label="Repository" role="img" height="16" viewBox="0 0 16 16" version="1.1" data-bbox="111 630 1000 642">
    <path fill-rule="evenodd" d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-8.75a2.5 2.5 0 01-2.5-2.5zm0 1" data-bbox="111 645 1000 657">

    <svg title="Project" aria-label="Project" role="img" height="16" viewBox="0 0 16 16" version="1.1" data-bbox="111 680 1000 692">
    <path fill-rule="evenodd" d="M1.75 0A1.75 1.75 0 00 0 1.75v12.5C0 15.216 7.84 16 16 16h12.5A1.75 1.75 0 00 16 14.25V0h-1.75zm0 1" data-bbox="111 695 1000 707">

    <svg title="Search" aria-label="Search" role="img" height="16" viewBox="0 0 16 16" version="1.1" data-bbox="111 730 1000 742">
    <path fill-rule="evenodd" d="M11.5 7a4.499 4.499 0 11-8.998 0A4.499 4.499 0 0111.5 7zm-.82 4.74a6 6 0 11-1.14 6.82 4.499 4.499 0 10 0-8.998" data-bbox="111 745 1000 757">

</div>

<img class="avatar mr-2 flex-shrink-0 js-jump-to-suggestion-avatar d-none" alt="" aria-label="Team" src="" data-bbox="111 808 1000 820">

<div class="jump-to-suggestion-name js-jump-to-suggestion-name flex-auto overflow-hidden text-left no-wrap" data-bbox="111 838 1000 850">
</div>

<div class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d-none js-jump-to-suggestion" data-bbox="111 883 1000 895">
  <span class="js-jump-to-badge-search-text-default d-none" aria-label="in this repository">

```

```

    In this repository
  </span>
  <span class="js-jump-to-badge-search-text-global d-none" aria-label="in all of GitHub">
    All GitHub
  </span>
  <span aria-hidden="true" class="d-inline-block ml-1 v-align-middle"></span>
</div>

<div aria-hidden="true" class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 :
  Jump to
  <span class="d-inline-block ml-1 v-align-middle"></span>
</div>

No suggested jump to results

  <svg title="Repository" aria-label="Repository" role="img" height="16" viewBox="0 0 16 16" version="1
<path fill-rule="evenodd" d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2

  <svg title="Project" aria-label="Project" role="img" height="16" viewBox="0 0 16 16" version="1.1" wi
<path fill-rule="evenodd" d="M1.75 0A1.75 1.75 0 000 1.75v12.5C0 15.216.784 16 1.75 16h12.5A1.75 1.75 0

  <svg title="Search" aria-label="Search" role="img" height="16" viewBox="0 0 16 16" version="1.1" width
<path fill-rule="evenodd" d="M11.5 7a4.499 4.499 0 11-8.998 0A4.499 4.499 0 0111.5 7zm-.82 4.74a6 6 0 1

</div>

<img class="avatar mr-2 flex-shrink-0 js-jump-to-suggestion-avatar d-none" alt="" aria-label="Team" src=

<div class="jump-to-suggestion-name js-jump-to-suggestion-name flex-auto overflow-hidden text-left no-w
</div>

<div class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d-none js-jump-t
  <span class="js-jump-to-badge-search-text-default d-none" aria-label="in this repository">
    In this repository
  </span>
  <span class="js-jump-to-badge-search-text-global d-none" aria-label="in all of GitHub">
    All GitHub
  </span>
  <span aria-hidden="true" class="d-inline-block ml-1 v-align-middle"></span>
</div>

<div aria-hidden="true" class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 :
  Jump to
  <span class="d-inline-block ml-1 v-align-middle"></span>
</div>

  <svg title="Repository" aria-label="Repository" role="img" height="16" viewBox="0 0 16 16" version="1
<path fill-rule="evenodd" d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2

  <svg title="Project" aria-label="Project" role="img" height="16" viewBox="0 0 16 16" version="1.1" wi
<path fill-rule="evenodd" d="M1.75 0A1.75 1.75 0 000 1.75v12.5C0 15.216.784 16 1.75 16h12.5A1.75 1.75 0

```

```

    <svg title="Search" aria-label="Search" role="img" height="16" viewBox="0 0 16 16" version="1.1" width="16" height="16">
    <path fill-rule="evenodd" d="M11.5 7a4.499 4.499 0 11-8.998 0A4.499 4.499 0 0111.5 7zm-.82 4.74a6 6 0 11-8.998 0" />
    </div>

    <img class="avatar mr-2 flex-shrink-0 js-jump-to-suggestion-avatar d-none" alt="" aria-label="Team" src="" />

    <div class="jump-to-suggestion-name js-jump-to-suggestion-name flex-auto overflow-hidden text-left no-wrap">
    </div>

    <div class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d-none js-jump-to-suggestion-name">
      <span class="js-jump-to-badge-search-text-default d-none" aria-label="in this user">
        In this user
      </span>
      <span class="js-jump-to-badge-search-text-global d-none" aria-label="in all of GitHub">
        All GitHub
      </span>
      <span aria-hidden="true" class="d-inline-block ml-1 v-align-middle"></span>
    </div>

    <div aria-hidden="true" class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d-none js-jump-to-suggestion-name">
      Jump to
      <span class="d-inline-block ml-1 v-align-middle"></span>
    </div>

    <svg title="Repository" aria-label="Repository" role="img" height="16" viewBox="0 0 16 16" version="1.1" width="16" height="16">
    <path fill-rule="evenodd" d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-8.75a2.5 2.5 0 01-2.5-2.5z" />
    </div>

    <svg title="Project" aria-label="Project" role="img" height="16" viewBox="0 0 16 16" version="1.1" width="16" height="16">
    <path fill-rule="evenodd" d="M1.75 0A1.75 1.75 0 000 1.75v12.5C0 15.216 7.84 16 16 16h1.75a1.75 1.75 0 001.75-1.75v-8.5A1.75 1.75 0 001.75 0" />
    </div>

    <svg title="Search" aria-label="Search" role="img" height="16" viewBox="0 0 16 16" version="1.1" width="16" height="16">
    <path fill-rule="evenodd" d="M11.5 7a4.499 4.499 0 11-8.998 0A4.499 4.499 0 0111.5 7zm-.82 4.74a6 6 0 11-8.998 0" />
    </div>

    <img class="avatar mr-2 flex-shrink-0 js-jump-to-suggestion-avatar d-none" alt="" aria-label="Team" src="" />

    <div class="jump-to-suggestion-name js-jump-to-suggestion-name flex-auto overflow-hidden text-left no-wrap">
    </div>

    <div class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d-none js-jump-to-suggestion-name">
      <span class="js-jump-to-badge-search-text-default d-none" aria-label="in this repository">
        In this repository
      </span>
      <span class="js-jump-to-badge-search-text-global d-none" aria-label="in all of GitHub">
        All GitHub
      </span>
      <span aria-hidden="true" class="d-inline-block ml-1 v-align-middle"></span>
    </div>

    <div aria-hidden="true" class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d-none js-jump-to-suggestion-name">
      Jump to

```

```

    <span class="d-inline-block ml-1 v-align-middle"></span>
</div>

<li class="d-flex flex-justify-center flex-items-center p-0 f5 js-jump-to-suggestion">
    <svg style="box-sizing: content-box; color: var(--color-icon-primary);" width="32" height="32" viewBox="0 0 32 32">

        </div>
    </label>

```

```

    <nav id="global-nav" class="d-flex flex-column flex-md-row flex-self-stretch flex-md-self-auto" aria-label="Global Navigation">
    <a class="Header-link py-md-3 d-block d-md-none py-2 border-top border-md-top-0 border-white-fade" data-hotkey="g d" href="https://github.com/">

```

Pull requests Issues

```

<a class="js-selected-navigation-item Header-link mt-md-n3 mb-md-n3 py-2 py-md-3 mr-0 mr-md-3 border-top border-md-top-0 border-white-fade" data-hotkey="g p" href="/pulls/">
    <div class="d-flex position-relative">
        <a class="js-selected-navigation-item Header-link flex-auto mt-md-n3 mb-md-n3 py-2 py-md-3 mr-0 mr-md-3 border-top border-md-top-0 border-white-fade" data-hotkey="g p" href="/pulls/">
    </div>

```

Explore

```

<a class="js-selected-navigation-item Header-link d-block d-md-none py-2 py-md-3 border-top border-md-top-0 border-white-fade" data-hotkey="g e" href="/explore/">
<a class="Header-link d-block d-md-none mr-0 mr-md-3 py-2 py-md-3 border-top border-md-top-0 border-white-fade" data-hotkey="g e" href="/explore/">
<a class="Header-link d-block d-md-none mr-0 mr-md-3 py-2 py-md-3 border-top border-md-top-0 border-white-fade" data-hotkey="g e" href="/explore/">
    

```

Sign out

```

    <a
class="Header-link" href="https://github.com/" data-hotkey="g d" aria-label="Homepage" data-turbo="false" data-analytics-event="{"category": 'Header', "action": 'go to dashboard', "label": 'icon: logo%22;}">
    </div>

```

```

<div class="Header-item mr-0 mr-md-3 flex-order-1 flex-md-order-none">

```

```

<span
    data-target="notification-indicator.badge"
    class="mail-status unread" hidden>
</span>

```

```

    <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-component="true">
    <path d="M8 16a2 2 0 01.985-1.75c.017-.137-.097-.25-.235-.25h-3.5c-.138 0-.252.113-.235.25A2 2 0 08 16" data-bbox="112 875 1000 905"/>

```

```

        <details class="details-overlay details-reset">

New repository
Import repository
New codespace
New gist
New organization

</div>

<div class="Header-item position-relative mr-0 d-none d-md-flex">

    <p class="ml-1 mb-2 mt-2 color-fg-default" data-show-on-error>
        <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-component=
    <path fill-rule="evenodd" d="M8.22 1.754a.25.25 0 00-.44 0L1.698 13.132a.25.25 0 00.22.368h12.164a.25.25
        Sorry, something went wrong.
    </p>
</include-fragment>

</div>

</div>

<div id="js-flash-container" data-turbo-replace>

<div class="clearfix flash flash-full flash-warn">

<!-- '' --><!-- </textarea></xmp> --></option></form><form data-turbo="false" action="/settings/two_fa
    <button class="flash-close" float="right" type="submit" aria-label="Dismiss this message">
        <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-component=
    <path fill-rule="evenodd" d="M3.72 3.72a.75.75 0 011.06 0L8 6.9413.22-3.22a.75.75 0 111.06 1.06L9.06 8.1
        </button>

Don't get locked out - if you get a new phone this season, be sure to transfer your authenticator app data
to the new phone. Enable cloud back up if your authenticator app supports it and consider redownloading
your recovery codes, just to be safe.

<button autofocus class="flash-close js-flash-close" type="button" aria-label="Dismiss this message">
    <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-component=
    <path fill-rule="evenodd" d="M3.72 3.72a.75.75 0 011.06 0L8 6.9413.22-3.22a.75.75 0 111.06 1.06L9.06 8.1
        </button>
<div aria-atomic="true" role="alert" class="js-flash-alert">

    <div>{{ message }}</div>

</div>

```

<details

class="details-reset details-overlay details-overlay-dark js-command-palette-dialog" id="command-palette-pjax-container" data-turbo-replace >

```
<command-palette-mode
  data-char="#"
  data-scope-types="["&quot;&quot;]"
  data-placeholder="Search issues and pull requests"
></command-palette-mode>
<command-palette-mode
  data-char="#"
  data-scope-types="["&quot;owner&quot;;&quot;repository&quot;]"
  data-placeholder="Search issues, pull requests, discussions, and projects"
></command-palette-mode>
<command-palette-mode
  data-char="!"
  data-scope-types="["&quot;owner&quot;;&quot;repository&quot;]"
  data-placeholder="Search projects"
></command-palette-mode>
<command-palette-mode
  data-char "@"
  data-scope-types="["&quot;&quot;]"
  data-placeholder="Search or jump to a user, organization, or repository"
></command-palette-mode>
<command-palette-mode
  data-char "@"
  data-scope-types="["&quot;owner&quot;]"
  data-placeholder="Search or jump to a repository"
></command-palette-mode>
<command-palette-mode
  data-char "/"
  data-scope-types="["&quot;repository&quot;]"
  data-placeholder="Search files"
></command-palette-mode>
<command-palette-mode
  data-char "?"
></command-palette-mode>
<command-palette-mode
  data-char "&gt;"
  data-placeholder="Run a command"
></command-palette-mode>
<command-palette-mode
  data-char ""
  data-scope-types="["&quot;&quot;]"
  data-placeholder="Search or jump to..."
></command-palette-mode>
<command-palette-mode
  data-char ""
  data-scope-types="["&quot;owner&quot;]"
  data-placeholder="Search or jump to..."
></command-palette-mode>
<command-palette-mode
  class="js-command-palette-default-mode"
```



```

        data-targets="command-palette-scope.tokens"
        class="color-fg-default text-semibold"
        style="white-space:nowrap;line-height:20px;"
        >MT5763_Zatoichi<span class="color-fg-subtle text-normal">&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;</span><
</command-palette-scope>
<div class="command-palette-input-group flex-1 form-control border-0 box-shadow-none" style="z-index:
  <div class="command-palette-typeahead position-absolute d-flex flex-items-center Truncate">
    <span class="typeahead-segment input-mirror" data-target="command-palette-input.mirror"></span>
    <span class="Truncate-text" data-target="command-palette-input.typeaheadText"></span>
    <span class="typeahead-segment" data-target="command-palette-input.typeaheadPlaceholder"></span>
  </div>
  <input
    class="js-overlay-input typeahead-input d-none"
    disabled
    tabindex="-1"
    aria-label="Hidden input for typeahead"
  >
  <input
    type="text"
    autocomplete="off"
    autocorrect="off"
    autocapitalize="off"
    spellcheck="false"
    class="js-input typeahead-input form-control border-0 box-shadow-none input-block width-full no
    aria-label="Command palette input"
    aria-haspopup="listbox"
    aria-expanded="false"
    aria-autocomplete="list"
    aria-controls="command-palette-page-stack"
    role="combobox"
    data-action="
      input:command-palette-input#onInput
      keydown:command-palette-input#onKeydown
    "
  >
</div>
  <div data-view-component="true" class="position-relative d-inline-block">
<button aria-keyshortcuts="Meta+Delete" data-action="click:command-palette-input#onClear keypress:command
<path fill-rule="evenodd" d="M2.343 13.657A8 8 0 1113.657 2.343 8 8 0 012.343 13.657z" data-bbox="13.657 2.343 13.657 13.657" data-kind="parent" data-rs="2" data-

```

Clear Command Palette

```

</command-palette-input>

<command-palette-page-stack
  data-default-scope-id="R_kgDOGRLBqA"
  data-default-scope-type="Repository"
  data-action="command-palette-page-octicons-cached:command-palette-page-stack#cacheOcticons"
>

  <command-palette-tip
    class="color-fg-muted f6 px-3 py-1 my-2"
    data-scope-types="[&quot;&quot;;&quot;&quot;;owner&quot;;&quot;repository&quot;]"
    data-mode=""
    data-value=""
  >

```

```

<div class="d-flex flex-items-start flex-justify-between">
  <div>
    <span class="text-bold">Tip:</span>
    Type <kbd class="hx_kbd">#</kbd> to search pull requests
  </div>
  <div class="ml-2 flex-shrink-0">
    Type <kbd class="hx_kbd">?</kbd> for help and tips
  </div>
</div>
</command-palette-tip>
<command-palette-tip
class="color-fg-muted f6 px-3 py-1 my-2"
data-scope-types="['&quot;&quot;,&quot;owner&quot;,&quot;repository&quot;']"
data-mode=""
data-value="">
<div class="d-flex flex-items-start flex-justify-between">
  <div>
    <span class="text-bold">Tip:</span>
    Type <kbd class="hx_kbd">#</kbd> to search issues
  </div>
  <div class="ml-2 flex-shrink-0">
    Type <kbd class="hx_kbd">?</kbd> for help and tips
  </div>
</div>
</command-palette-tip>
<command-palette-tip
class="color-fg-muted f6 px-3 py-1 my-2"
data-scope-types="['&quot;owner&quot;,&quot;repository&quot;']"
data-mode=""
data-value="">
<div class="d-flex flex-items-start flex-justify-between">
  <div>
    <span class="text-bold">Tip:</span>
    Type <kbd class="hx_kbd">#</kbd> to search discussions
  </div>
  <div class="ml-2 flex-shrink-0">
    Type <kbd class="hx_kbd">?</kbd> for help and tips
  </div>
</div>
</command-palette-tip>
<command-palette-tip
class="color-fg-muted f6 px-3 py-1 my-2"
data-scope-types="['&quot;owner&quot;,&quot;repository&quot;']"
data-mode=""
data-value="">
<div class="d-flex flex-items-start flex-justify-between">
  <div>
    <span class="text-bold">Tip:</span>
    Type <kbd class="hx_kbd">!</kbd> to search projects
  </div>
  <div class="ml-2 flex-shrink-0">
    Type <kbd class="hx_kbd">?</kbd> for help and tips
  </div>
</div>
</div>

```

```

</command-palette-tip>
<command-palette-tip
  class="color-fg-muted f6 px-3 py-1 my-2"
  data-scope-types="['owner']"
  data-mode=""
  data-value=""
  <div class="d-flex flex-items-start flex-justify-between">
    <div>
      <span class="text-bold">Tip:</span>
      Type <kbd class="hx_kbd">@</kbd> to search teams
    </div>
    <div class="ml-2 flex-shrink-0">
      Type <kbd class="hx_kbd">?</kbd> for help and tips
    </div>
  </div>
</command-palette-tip>
<command-palette-tip
  class="color-fg-muted f6 px-3 py-1 my-2"
  data-scope-types="['&quot;&quot;']"
  data-mode=""
  data-value=""
  <div class="d-flex flex-items-start flex-justify-between">
    <div>
      <span class="text-bold">Tip:</span>
      Type <kbd class="hx_kbd">@</kbd> to search people and organizations
    </div>
    <div class="ml-2 flex-shrink-0">
      Type <kbd class="hx_kbd">?</kbd> for help and tips
    </div>
  </div>
</command-palette-tip>
<command-palette-tip
  class="color-fg-muted f6 px-3 py-1 my-2"
  data-scope-types="['&quot;&quot;;&quot;owner&quot;;&quot;repository&quot;']"
  data-mode=""
  data-value=""
  <div class="d-flex flex-items-start flex-justify-between">
    <div>
      <span class="text-bold">Tip:</span>
      Type <kbd class="hx_kbd">&gt;</kbd> to activate command mode
    </div>
    <div class="ml-2 flex-shrink-0">
      Type <kbd class="hx_kbd">?</kbd> for help and tips
    </div>
  </div>
</command-palette-tip>
<command-palette-tip
  class="color-fg-muted f6 px-3 py-1 my-2"
  data-scope-types="['&quot;&quot;;&quot;owner&quot;;&quot;repository&quot;']"
  data-mode=""
  data-value=""
  <div class="d-flex flex-items-start flex-justify-between">
    <div>
      <span class="text-bold">Tip:</span>

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        Go to your accessibility settings to change your keyboard shortcuts
    </div>
    <div class="ml-2 flex-shrink-0">
        Type <kbd class="hx_kbd">?</kbd> for help and tips
    </div>
</div>
</command-palette-tip>
<command-palette-tip
class="color-fg-muted f6 px-3 py-1 my-2"
data-scope-types="['<','>','owner','repository']"
data-mode="#"
data-value="">
<div class="d-flex flex-items-start flex-justify-between">
    <div>
        <span class="text-bold">Tip:</span>
        Type author:@me to search your content
    </div>
    <div class="ml-2 flex-shrink-0">
        Type <kbd class="hx_kbd">?</kbd> for help and tips
    </div>
</div>
</command-palette-tip>
<command-palette-tip
class="color-fg-muted f6 px-3 py-1 my-2"
data-scope-types="['<','>','owner','repository']"
data-mode="#"
data-value="">
<div class="d-flex flex-items-start flex-justify-between">
    <div>
        <span class="text-bold">Tip:</span>
        Type is:pr to filter to pull requests
    </div>
    <div class="ml-2 flex-shrink-0">
        Type <kbd class="hx_kbd">?</kbd> for help and tips
    </div>
</div>
</command-palette-tip>
<command-palette-tip
class="color-fg-muted f6 px-3 py-1 my-2"
data-scope-types="['<','>','owner','repository']"
data-mode="#"
data-value="">
<div class="d-flex flex-items-start flex-justify-between">
    <div>
        <span class="text-bold">Tip:</span>
        Type is:issue to filter to issues
    </div>
    <div class="ml-2 flex-shrink-0">
        Type <kbd class="hx_kbd">?</kbd> for help and tips
    </div>
</div>
</command-palette-tip>
<command-palette-tip
class="color-fg-muted f6 px-3 py-1 my-2"

```

```

    data-scope-types="['owner','repository;]"
    data-mode="#"
    data-value=""
    <div class="d-flex flex-items-start flex-justify-between">
      <div>
        <span class="text-bold">Tip:</span>
        Type is:project to filter to projects
      </div>
      <div class="ml-2 flex-shrink-0">
        Type <kbd class="hx_kbd">?</kbd> for help and tips
      </div>
    </div>
  </command-palette-tip>
  <command-palette-tip
    class="color-fg-muted f6 px-3 py-1 my-2"
    data-scope-types="['','owner','repository;]"
    data-mode="#"
    data-value=""
    <div class="d-flex flex-items-start flex-justify-between">
      <div>
        <span class="text-bold">Tip:</span>
        Type is:open to filter to open content
      </div>
      <div class="ml-2 flex-shrink-0">
        Type <kbd class="hx_kbd">?</kbd> for help and tips
      </div>
    </div>
  </command-palette-tip>
  <command-palette-tip class="mx-3 my-2 flash flash-error d-flex flex-items-center" data-scope-types=
    <div>
      <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-comp
    <path fill-rule="evenodd" d="M8.22 1.754a.25.25 0 0-.44 0L1.698 13.132a.25.25 0 0.22.368h12.164a.25.25
  </div>
  <div class="px-2">
    We've encountered an error and some results aren't available at this time. Type a new search or
  </div>
</command-palette-tip>
<command-palette-tip class="h4 color-fg-default pl-3 pb-2 pt-3" data-on-empty data-scope-types="*"
  No results matched your search
</command-palette-tip>

<div hidden>

  <div data-targets="command-palette-page-stack.local0cticons" data-octicon-id="arrow-right-color-
    <svg height="16" class="octicon octicon-arrow-right color-fg-muted" viewBox="0 0 16 16" versi
  </div>
  <div data-targets="command-palette-page-stack.local0cticons" data-octicon-id="arrow-right-color-
    <svg height="16" class="octicon octicon-arrow-right color-fg-default" viewBox="0 0 16 16" ver
  </div>
  <div data-targets="command-palette-page-stack.local0cticons" data-octicon-id="codespaces-color-
    <svg height="16" class="octicon octicon-codespaces color-fg-muted" viewBox="0 0 16 16" version
  </div>
  <div data-targets="command-palette-page-stack.local0cticons" data-octicon-id="copy-color-fg-mut

```

```

    <svg height="16" class="octicon octicon-copy color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="dash-color-fg-muted" >
    <svg height="16" class="octicon octicon-dash color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="file-color-fg-muted" >
    <svg height="16" class="octicon octicon-file color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="gear-color-fg-muted" >
    <svg height="16" class="octicon octicon-gear color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="lock-color-fg-muted" >
    <svg height="16" class="octicon octicon-lock color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="moon-color-fg-muted" >
    <svg height="16" class="octicon octicon-moon color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="person-color-fg-muted" >
    <svg height="16" class="octicon octicon-person color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="pencil-color-fg-muted" >
    <svg height="16" class="octicon octicon-pencil color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="issue-opened-open" >
    <svg height="16" class="octicon octicon-issue-opened open" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="git-pull-request-draft" >
    <svg height="16" class="octicon octicon-git-pull-request-draft color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="search-color-fg-muted" >
    <svg height="16" class="octicon octicon-search color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="sun-color-fg-muted" >
    <svg height="16" class="octicon octicon-sun color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="sync-color-fg-muted" >
    <svg height="16" class="octicon octicon-sync color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="trash-color-fg-muted" >
    <svg height="16" class="octicon octicon-trash color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="key-color-fg-muted" >
    <svg height="16" class="octicon octicon-key color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="comment-discussion" >
    <svg height="16" class="octicon octicon-comment-discussion color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="bell-color-fg-muted" >
    <svg height="16" class="octicon octicon-bell color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="bell-slash-color-fg-muted" >
    <svg height="16" class="octicon octicon-bell-slash color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>
  <div data-targets="command-palette-page-stack.localOcticons" data-octicon-id="paintbrush-color-fg-muted" >
    <svg height="16" class="octicon octicon-paintbrush color-fg-muted" viewBox="0 0 16 16" version="1.1" />
  </div>

```

```

    <svg height="16" class="octicon octicon-paintbrush color-fg-muted" viewBox="0 0 16 16" version="1.1">
  </div>

```

```

<command-palette-item-group
  data-group-id="top"
  data-group-title="Top result"
  data-group-hint=""
  data-group-limits="{}"
  data-default-priority="0"
>
</command-palette-item-group>
<command-palette-item-group
  data-group-id="commands"
  data-group-title="Commands"
  data-group-hint="Type &gt; to filter"
  data-group-limits="{&quot;static_items_page&quot;;:50,&quot;issue&quot;;:50,&quot;pull_request&quot;;:50,&quot;discussion&quot;;:0}"
  data-default-priority="1"
>
</command-palette-item-group>
<command-palette-item-group
  data-group-id="global_commands"
  data-group-title="Global Commands"
  data-group-hint="Type &gt; to filter"
  data-group-limits="{&quot;issue&quot;;:0,&quot;pull_request&quot;;:0,&quot;discussion&quot;;:0}"
  data-default-priority="2"
>
</command-palette-item-group>
<command-palette-item-group
  data-group-id="this_page"
  data-group-title="This Page"
  data-group-hint=""
  data-group-limits="{}"
  data-default-priority="3"
>
</command-palette-item-group>
<command-palette-item-group
  data-group-id="files"
  data-group-title="Files"
  data-group-hint=""
  data-group-limits="{}"
  data-default-priority="4"
>
</command-palette-item-group>
<command-palette-item-group
  data-group-id="default"
  data-group-title="Default"
  data-group-hint=""
  data-group-limits="{&quot;static_items_page&quot;;:50}"
  data-default-priority="5"
>
</command-palette-item-group>
<command-palette-item-group
  data-group-id="pages"
  data-group-title="Pages"

```

```

    data-group-hint=""
    data-group-limits="{&quot;repository&quot;;:10}"
    data-default-priority="6"
  >
</command-palette-item-group>
<command-palette-item-group
  data-group-id="access_policies"
  data-group-title="Access Policies"
  data-group-hint=""
  data-group-limits="{}"
  data-default-priority="7"
>
</command-palette-item-group>
<command-palette-item-group
  data-group-id="organizations"
  data-group-title="Organizations"
  data-group-hint=""
  data-group-limits="{}"
  data-default-priority="8"
>
</command-palette-item-group>
<command-palette-item-group
  data-group-id="repositories"
  data-group-title="Repositories"
  data-group-hint=""
  data-group-limits="{}"
  data-default-priority="9"
>
</command-palette-item-group>
<command-palette-item-group
  data-group-id="references"
  data-group-title="Issues, pull requests, and discussions"
  data-group-hint="Type # to filter"
  data-group-limits="{}"
  data-default-priority="10"
>
</command-palette-item-group>
<command-palette-item-group
  data-group-id="teams"
  data-group-title="Teams"
  data-group-hint=""
  data-group-limits="{}"
  data-default-priority="11"
>
</command-palette-item-group>
<command-palette-item-group
  data-group-id="users"
  data-group-title="Users"
  data-group-hint=""
  data-group-limits="{}"
  data-default-priority="12"
>
</command-palette-item-group>
<command-palette-item-group

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        data-group-id="projects"
        data-group-title="Projects"
        data-group-hint=""
        data-group-limits="{}"
        data-default-priority="13"
    >
</command-palette-item-group>
<command-palette-item-group
    data-group-id="footer"
    data-group-title="Footer"
    data-group-hint=""
    data-group-limits="{}"
    data-default-priority="14"
>
</command-palette-item-group>
<command-palette-item-group
    data-group-id="modes_help"
    data-group-title="Modes"
    data-group-hint=""
    data-group-limits="{}"
    data-default-priority="15"
>
</command-palette-item-group>
<command-palette-item-group
    data-group-id="filters_help"
    data-group-title="Use filters in issues, pull requests, discussions, and projects"
    data-group-hint=""
    data-group-limits="{}"
    data-default-priority="16"
>
</command-palette-item-group>

<command-palette-page
    data-page-title="lukerobins1"
    data-scope-id="U_kgDOBxbgRw"
    data-scope-type="owner"
    data-targets="command-palette-page-stack.defaultPages"
    hidden
>
</command-palette-page>
<command-palette-page
    data-page-title="MT5763_Zatoichi"
    data-scope-id="R_kgDOGRLBqA"
    data-scope-type="repository"
    data-targets="command-palette-page-stack.defaultPages"
    hidden
>
</command-palette-page>
</div>

<command-palette-page data-is-root>
</command-palette-page>
<command-palette-page
    data-page-title="lukerobins1"

```

```

        data-scope-id="U_kgDOBXbgRw"
        data-scope-type="owner"
    >
</command-palette-page>
<command-palette-page
    data-page-title="MT5763_Zatoichi"
    data-scope-id="R_kgD0GRLBqA"
    data-scope-type="repository"
>
</command-palette-page>
</command-palette-page-stack>

<server-defined-provider data-type="search-links" data-targets="command-palette.serverDefinedProviderElements" data-scope-type="owner" data-scope-id="U_kgDOBXbgRw">
<server-defined-provider data-type="help" data-targets="command-palette.serverDefinedProviderElements" data-scope-type="owner" data-scope-id="U_kgDOBXbgRw">
    <command-palette-help
        data-group="modes_help"
        data-prefix="#"
        data-scope-types="['""']"
    >
        <span data-target="command-palette-help.titleElement">Search for <strong>issues</strong> and <strong>pull requests</strong></span>
        <span data-target="command-palette-help.hintElement">
            <kbd class="hx_kbd">#</kbd>
        </span>
    </command-palette-help>
    <command-palette-help
        data-group="modes_help"
        data-prefix="#"
        data-scope-types="['"owner";,"repository"']"
    >
        <span data-target="command-palette-help.titleElement">Search for <strong>issues, pull requests, and repositories</strong></span>
        <span data-target="command-palette-help.hintElement">
            <kbd class="hx_kbd">#</kbd>
        </span>
    </command-palette-help>
    <command-palette-help
        data-group="modes_help"
        data-prefix="@"
        data-scope-types="['""']"
    >
        <span data-target="command-palette-help.titleElement">Search for <strong>organizations, repositories, and projects</strong></span>
        <span data-target="command-palette-help.hintElement">
            <kbd class="hx_kbd">@</kbd>
        </span>
    </command-palette-help>
    <command-palette-help
        data-group="modes_help"
        data-prefix="!"
        data-scope-types="['"owner";,"repository"']"
    >
        <span data-target="command-palette-help.titleElement">Search for <strong>projects</strong></span>
        <span data-target="command-palette-help.hintElement">
            <kbd class="hx_kbd">!</kbd>
        </span>
    </command-palette-help>

```

```

<command-palette-help
  data-group="modes_help"
  data-prefix="/"
  data-scope-types="['repository']"
>
  <span data-target="command-palette-help.titleElement">Search for <strong>files</strong></span>
    <span data-target="command-palette-help.hintElement">
      <kbd class="hx_kbd"></kbd>
    </span>
</command-palette-help>
<command-palette-help
  data-group="modes_help"
  data-prefix="&gt;"
>
  <span data-target="command-palette-help.titleElement">Activate <strong>command mode</strong></span>
    <span data-target="command-palette-help.hintElement">
      <kbd class="hx_kbd">&gt;</kbd>
    </span>
</command-palette-help>
<command-palette-help
  data-group="filters_help"
  data-prefix="# author:@me"
>
  <span data-target="command-palette-help.titleElement">Search your issues, pull requests, and di
    <span data-target="command-palette-help.hintElement">
      <kbd class="hx_kbd"># author:@me</kbd>
    </span>
</command-palette-help>
<command-palette-help
  data-group="filters_help"
  data-prefix="# author:@me"
>
  <span data-target="command-palette-help.titleElement">Search your issues, pull requests, and di
    <span data-target="command-palette-help.hintElement">
      <kbd class="hx_kbd"># author:@me</kbd>
    </span>
</command-palette-help>
<command-palette-help
  data-group="filters_help"
  data-prefix="# is:pr"
>
  <span data-target="command-palette-help.titleElement">Filter to pull requests</span>
    <span data-target="command-palette-help.hintElement">
      <kbd class="hx_kbd"># is:pr</kbd>
    </span>
</command-palette-help>
<command-palette-help
  data-group="filters_help"
  data-prefix="# is:issue"
>
  <span data-target="command-palette-help.titleElement">Filter to issues</span>
    <span data-target="command-palette-help.hintElement">
      <kbd class="hx_kbd"># is:issue</kbd>
    </span>

```

```

</command-palette-help>
<command-palette-help
  data-group="filters_help"
  data-prefix="# is:discussion"
  data-scope-types="["&quot;owner&quot;;,&quot;repository&quot;;]"
>
  <span data-target="command-palette-help.titleElement">Filter to discussions</span>
  <span data-target="command-palette-help.hintElement">
    <kbd class="hx_kbd"># is:discussion</kbd>
  </span>
</command-palette-help>
<command-palette-help
  data-group="filters_help"
  data-prefix="# is:project"
  data-scope-types="["&quot;owner&quot;;,&quot;repository&quot;;]"
>
  <span data-target="command-palette-help.titleElement">Filter to projects</span>
  <span data-target="command-palette-help.hintElement">
    <kbd class="hx_kbd"># is:project</kbd>
  </span>
</command-palette-help>
<command-palette-help
  data-group="filters_help"
  data-prefix="# is:open"
>
  <span data-target="command-palette-help.titleElement">Filter to open issues, pull requests, and
  <span data-target="command-palette-help.hintElement">
    <kbd class="hx_kbd"># is:open</kbd>
  </span>
</command-palette-help>
</server-defined-provider>

<server-defined-provider
  data-type="commands"
  data-fetch-debounce="0"
  data-src="/command_palette/commands"
  data-supported-modes="[]"
  data-supports-commands

  data-targets="command-palette.serverDefinedProviderElements"
></server-defined-provider>
<server-defined-provider
  data-type="prefetched"
  data-fetch-debounce="0"
  data-src="/command_palette/jump_to_page_navigation"
  data-supported-modes="["&quot;&quot;;]"
  data-supported-scope-types="["&quot;&quot;;,&quot;owner&quot;;,&quot;repository&quot;;]"

  data-targets="command-palette.serverDefinedProviderElements"
></server-defined-provider>
<server-defined-provider
  data-type="remote"
  data-fetch-debounce="200"
  data-src="/command_palette/issues"

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data-supported-modes="["&quot;#&quot;;&quot;#&quot;]"
data-supported-scope-types="["&quot;owner&quot;;&quot;repository&quot;;&quot;&quot;]"

data-targets="command-palette.serverDefinedProviderElements"
></server-defined-provider>
<server-defined-provider
data-type="remote"
data-fetch-debounce="200"
data-src="/command_palette/jump_to"
data-supported-modes="["&quot;@&quot;;&quot;@&quot;]"
data-supported-scope-types="["&quot;&quot;;&quot;owner&quot;]"

data-targets="command-palette.serverDefinedProviderElements"
></server-defined-provider>
<server-defined-provider
data-type="remote"
data-fetch-debounce="200"
data-src="/command_palette/jump_to_members_only"
data-supported-modes="["&quot;@&quot;;&quot;@&quot;;&quot;&quot;;&quot;&quot;]"
data-supported-scope-types="["&quot;&quot;;&quot;owner&quot;]"

data-targets="command-palette.serverDefinedProviderElements"
></server-defined-provider>
<server-defined-provider
data-type="prefetched"
data-fetch-debounce="0"
data-src="/command_palette/jump_to_members_only_prefetched"
data-supported-modes="["&quot;@&quot;;&quot;@&quot;;&quot;&quot;;&quot;&quot;]"
data-supported-scope-types="["&quot;&quot;;&quot;owner&quot;]"

data-targets="command-palette.serverDefinedProviderElements"
></server-defined-provider>
<server-defined-provider
data-type="files"
data-fetch-debounce="0"
data-src="/command_palette/files"
data-supported-modes="["&quot;/&quot;]"
data-supported-scope-types="["&quot;repository&quot;]"

data-targets="command-palette.serverDefinedProviderElements"
></server-defined-provider>
<server-defined-provider
data-type="remote"
data-fetch-debounce="200"
data-src="/command_palette/discussions"
data-supported-modes="["&quot;#&quot;]"
data-supported-scope-types="["&quot;owner&quot;;&quot;repository&quot;]"

data-targets="command-palette.serverDefinedProviderElements"
></server-defined-provider>
<server-defined-provider
data-type="remote"
data-fetch-debounce="200"
data-src="/command_palette/projects"

```

```

        data-supported-modes="["&quot;#&quot;;&quot;!&quot;]"
        data-supported-scope-types="["&quot;owner&quot;;&quot;repository&quot;]"

        data-targets="command-palette.serverDefinedProviderElements"
    ></server-defined-provider>
<server-defined-provider
    data-type="prefetched"
    data-fetch-debounce="0"
    data-src="/command_palette/recent_issues"
    data-supported-modes="["&quot;#&quot;;&quot;#&quot;]"
    data-supported-scope-types="["&quot;owner&quot;;&quot;repository&quot;;&quot;&quot;]"

    data-targets="command-palette.serverDefinedProviderElements"
></server-defined-provider>
<server-defined-provider
    data-type="remote"
    data-fetch-debounce="200"
    data-src="/command_palette/teams"
    data-supported-modes="["&quot;@&quot;;&quot;&quot;]"
    data-supported-scope-types="["&quot;owner&quot;]"

    data-targets="command-palette.serverDefinedProviderElements"
></server-defined-provider>
<server-defined-provider
    data-type="remote"
    data-fetch-debounce="200"
    data-src="/command_palette/name_with_owner_repository"
    data-supported-modes="["&quot;@&quot;;&quot;@&quot;;&quot;&quot;;&quot;&quot;]"
    data-supported-scope-types="["&quot;&quot;;&quot;owner&quot;]"

    data-targets="command-palette.serverDefinedProviderElements"
></server-defined-provider>
</command-palette>

<span class="Toast-icon">
    <svg class="Toast--spinner" viewBox="0 0 32 32" width="18" height="18" aria-hidden="true">
        <path
            fill="#959da5"
            d="M16 0 A16 16 0 0 0 16 32 A16 16 0 0 0 16 0 M16 4 A12 12 0 0 1 16 28 A12 12 0 0 1 16 4"
        />
        <path fill="ffffff" d="M16 0 A16 16 0 0 1 32 16 L28 16 A12 12 0 0 0 16 4z"></path>
    </svg>
</span>
<span class="Toast-content"></span>

<span class="Toast-icon">
    <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-component=
<path fill-rule="evenodd" d="M4.47.75.75 0 0 15 6.75.75 0 15.53.22 14.25 4.25c.14.14.22.31.22.53

</span>
<span class="Toast-content"></span>

<span class="Toast-icon">

```



```

        Unwatch
    </span>
    <span
        hidden

        data-target="notifications-list-subscription-form.stopIgnoringButtonCopy"
    >
        <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-co
    <path fill-rule="evenodd" d="M8 1.5c-.997 0-1.895.416-2.534 1.086A.75.75 0 014.38 1.55 5 5 0 0113 5v2.3

        Stop ignoring
    </span>
    <span

        data-target="notifications-list-subscription-form.watchButtonCopy"
    >
        <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-co
    <path fill-rule="evenodd" d="M1.679 7.932c.412-.621 1.242-1.75 2.366-2.717C5.175 4.242 6.527 3.5 8 3.5c

        Watch
    </span>
</span>
    <span id="repo-notifications-counter" data-target="notifications-list-subscription-form.socialC
    <span class="dropdown-caret"></span>

<details-menu
    class="SelectMenu "
    role="menu"
    data-target="notifications-list-subscription-form.menu"

>
    <div class="SelectMenu-modal notifications-component-menu-modal">
        <header class="SelectMenu-header">
            <h3 class="SelectMenu-title">Notifications</h3>
            <button class="SelectMenu-closeButton" type="button" aria-label="Close menu" data-action="cli
                <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-co
    <path fill-rule="evenodd" d="M3.72 3.72a.75.75 0 011.06 0L8 6.9413.22-3.22a.75.75 0 011.06 1.06L9.06 8.1

        </button>
    </header>

    <div class="SelectMenu-list">
        <!-- '' --><!-- </textarea></xmp> --></option></form><form data-target="notifications-list-s

        <input type="hidden" name="repository_id" value="420659624">

        <button
            type="submit"
            name="do"
            value="included"
            class="SelectMenu-item flex-items-start"
            role="menuitemradio"

```



```

        aria-checked="true"
        data-targets="notifications-list-subscription-form.subscriptionButtons"
    >
        <span class="f5">
            <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-v
<path fill-rule="evenodd" d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.
        </span>
        <div>
            <div class="f5 text-bold">
                Participating and @mentions
            </div>
            <div class="text-small color-fg-muted text-normal pb-1">
                Only receive notifications from this repository when participating or @mentioned.
            </div>
        </div>
    </button>

    <button
        type="submit"
        name="do"
        value="subscribed"
        class="SelectMenu-item flex-items-start"
        role="menuitemradio"
        aria-checked="false"
        data-targets="notifications-list-subscription-form.subscriptionButtons"
    >
        <span class="f5">
            <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-v
<path fill-rule="evenodd" d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.
        </span>
        <div>
            <div class="f5 text-bold">
                All Activity
            </div>
            <div class="text-small color-fg-muted text-normal pb-1">
                Notified of all notifications on this repository.
            </div>
        </div>
    </button>

    <button
        type="submit"
        name="do"
        value="ignore"
        class="SelectMenu-item flex-items-start"
        role="menuitemradio"
        aria-checked="false"
        data-targets="notifications-list-subscription-form.subscriptionButtons"
    >
        <span class="f5">
            <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-v

```

```

<path fill-rule="evenodd" d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0 010 1.06l7.25 7.25a.75.75 0 011.06 0" data-viewbox="0 0 16 16" data-visibility="hidden"/>
</span>
<div>
  <div class="f5 text-bold">
    Ignore
  </div>
  <div class="text-small color-fg-muted text-normal pb-1">
    Never be notified.
  </div>
</div>
</button>

<button
  class="SelectMenu-item flex-items-start pr-3"
  type="button"
  role="menuitemradio"
  data-target="notifications-list-subscription-form.customButton"
  data-action="click:notifications-list-subscription-form#openCustomDialog"
  aria-haspopup="true"
  aria-checked="false"
>
  <span class="f5">
    <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-viewbox="0 0 16 16" data-visibility="hidden">
      <path fill-rule="evenodd" d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0 010 1.06l7.25 7.25a.75.75 0 011.06 0" data-viewbox="0 0 16 16" data-visibility="hidden">
    </path>
  </span>
  <div>
    <div class="d-flex flex-items-start flex-justify-between">
      <div class="f5 text-bold">Custom</div>
      <div class="f5 pr-1">
        <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-viewbox="0 0 16 16" data-visibility="hidden">
          <path fill-rule="evenodd" d="M8.22 2.97a.75.75 0 011.06 0l4.25 4.25a.75.75 0 010 1.06l-4.25 4.25a.75.75 0 01-1.06 0" data-viewbox="0 0 16 16" data-visibility="hidden">
        </path>
      </div>
    </div>
    <div class="text-small color-fg-muted text-normal pb-1">
      Select events you want to be notified of in addition to participating and @mentions.
    </div>
  </div>
</button>

<div class="px-3 py-2 d-flex color-bg-subtle flex-items-center">
  <span class="f5">
    <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-viewbox="0 0 16 16" data-visibility="hidden">
      <path fill-rule="evenodd" d="M3.75 0A1.75 1.75 0 002 1.75v12.5c0 .966.784 1.75 1.75 1.75h8.5A1.75 1.75 0 0012.5 12.5v1.75c0 .966.784 1.75 1.75 1.75" data-viewbox="0 0 16 16" data-visibility="hidden">
    </path>
  </span>
  <span className="text-small color-fg-muted text-normal pb-1">
    Get push notifications on <a target="_blank" rel="noopener noreferrer" href="https://app.unity.com/notifications">Unity.com</a>
  </span>
</div>

```

```

        </div>
    </div>
</details-menu>

<details-dialog
    class="notifications-component-dialog "
    data-target="notifications-list-subscription-form.customDialog"
    aria-label="Custom dialog"
    hidden
>
    <div class="SelectMenu-modal notifications-component-dialog-modal overflow-visible">
        <!-- '"" --><!-- </textarea></xmp> --></option></form><form data-target="notifications-list-sub
            <input type="hidden" name="repository_id" value="420659624">

            <header class="d-sm-none SelectMenu-header pb-0 border-bottom-0 px-2 px-sm-3">
                <h1 class="f3 SelectMenu-title d-inline-flex">
                    <button
                        class="color-bg-default border-0 px-2 py-0 m-0 Link--secondary f5"
                        aria-label="Return to menu"
                        type="button"
                        data-action="click:notifications-list-subscription-form#closeCustomDialog"
                    >
                        <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-v
<path fill-rule="evenodd" d="M7.78 12.53a.75.75 0 01-1.06 0L2.47 8.28a.75.75 0 010-1.06l4.25-4.25a.75.75
                    </button>
                    Custom
                </h1>
            </header>

            <header class="d-none d-sm-flex flex-items-start pt-1">
                <button
                    class="border-0 px-2 pt-1 m-0 Link--secondary f5"
                    style="background-color: transparent;"
                    aria-label="Return to menu"
                    type="button"
                    data-action="click:notifications-list-subscription-form#closeCustomDialog"
                >
                    <svg style="position: relative; left: 2px; top: 1px" aria-hidden="true" height="16" viewB
<path fill-rule="evenodd" d="M7.78 12.53a.75.75 0 01-1.06 0L2.47 8.28a.75.75 0 010-1.06l4.25-4.25a.75.75
                </button>

                <h1 class="pt-1 pr-4 pb-0 pl-0 f5 text-bold">
                    Custom
                </h1>
            </header>

            <fieldset>
                <legend>
                    <div class="text-small color-fg-muted pt-0 pr-3 pb-3 pl-6 pl-sm-5 border-bottom mb-3">
                        Select events you want to be notified of in addition to participating and @mentions.
                    </div>
                </legend>
            </fieldset>
    </div>

```

```

</legend>
<div data-target="notifications-list-subscription-form.labelInputs">
</div>
<div class="form-checkbox mr-3 ml-6 ml-sm-5 mb-2 mt-0">
  <label class="f5 text-normal">
    <input
      type="checkbox"
      name="thread_types[]"
      value="Issue"
      data-targets="notifications-list-subscription-form.threadTypeCheckboxes"
      data-action="change:notifications-list-subscription-form#threadTypeCheckboxesUpdatee
    >
    Issues
  </label>

</div>
<div class="form-checkbox mr-3 ml-6 ml-sm-5 mb-2 mt-0">
  <label class="f5 text-normal">
    <input
      type="checkbox"
      name="thread_types[]"
      value="PullRequest"
      data-targets="notifications-list-subscription-form.threadTypeCheckboxes"
      data-action="change:notifications-list-subscription-form#threadTypeCheckboxesUpdatee
    >
    Pull requests
  </label>

</div>
<div class="form-checkbox mr-3 ml-6 ml-sm-5 mb-2 mt-0">
  <label class="f5 text-normal">
    <input
      type="checkbox"
      name="thread_types[]"
      value="Release"
      data-targets="notifications-list-subscription-form.threadTypeCheckboxes"
      data-action="change:notifications-list-subscription-form#threadTypeCheckboxesUpdatee
    >
    Releases
  </label>

</div>
<div class="form-checkbox mr-3 ml-6 ml-sm-5 mb-2 mt-0">
  <label class="f5 text-normal">
    <input
      type="checkbox"
      name="thread_types[]"
      value="Discussion"

```

```

        data-targets="notifications-list-subscription-form.threadTypeCheckboxes"
        data-action="change:notifications-list-subscription-form#threadTypeCheckboxesUpdate

        aria-describedby="Discussion-disabled"
        aria-disabled="true"
    >
    Discussions
</label>

    <div
        id="Discussion-disabled"
        class="color-fg-muted"
    >
        Discussions are not enabled for this repository
    </div>

</div>
<div class="form-checkbox mr-3 ml-6 ml-sm-5 mb-2 mt-0">
    <label class="f5 text-normal">
        <input
            type="checkbox"
            name="thread_types[]"
            value="SecurityAlert"
            data-targets="notifications-list-subscription-form.threadTypeCheckboxes"
            data-action="change:notifications-list-subscription-form#threadTypeCheckboxesUpdate

        >
        Security alerts
    </label>

</div>
</fieldset>
<div class="pt-2 pb-3 px-3 d-flex flex-justify-start flex-row-reverse">
    <button name="do" value="custom" data-target="notifications-list-subscription-form.custom

    <button data-action="click:notifications-list-subscription-form#resetForm" data-close-dia

</div>

</details-dialog>

    <div class="notifications-component-dialog-overlay"></div>
</details>
</notifications-list-subscription-form>

    <a icon="repo-forked" href="/lukerobins1/MT5763_Zatoichi/fork" data-hydro-click="{&quot;event_type&
<path fill-rule="evenodd" d="M5 3.25a.75.75 0 11-1.5 0 .75.75 0 011.5 0zm0 2.122a2.25 2.25 0 10-1.5 0v.1

Fork 0

    <button class="SelectMenu-closeButton position-absolute right-0 m-2" type="button" aria-label="Close

```



```

<!-- '' --><!-- </textarea></xmp> --></option></form><form class="js-social-form BtnGroup-parent fle
  <input type="hidden" name="context" value="repository">
    <button data-hydro-click="{&quot;event_type&quot;:&quot;repository.click&quot;,&quot;payload&quot;
<path fill-rule="evenodd" d="M8 .25a.75.75 0 01.673.41811.882 3.815 4.21.612a.75.75 0 01.416 1.2791-3.0

Star 0

    <button class="SelectMenu-closeButton position-absolute right-0 m-2" type="button" aria-label="Close
      <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-compon
<path fill-rule="evenodd" d="M3.72 3.72a.75.75 0 011.06 1.06L9.06 8.13
    </button>
<div
  id="filter-menu-76a86d"
  class="d-flex flex-column flex-1 overflow-hidden"

  <div class="SelectMenu-list"

    >

    <include-fragment class="SelectMenu-loading" aria-label="Loading">
      <svg role="menuitem" style="box-sizing: content-box; color: var(--color-icon-primary);" width=

</div>

<div id="responsive-meta-container" data-turbo-replace>

  <nav data-pjax="#js-repo-pjax-container" aria-label="Repository" data-view-component="true" class=

    <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-com
<path fill-rule="evenodd" d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8.13.72 3.72a.75.75 0 11-1.06 1.06L.47

  <span data-content="Code">Code</span>
    <span id="code-repo-tab-count" data-pjax-replace="" data-turbo-replace="" title="Not available" d

      <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-com
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 000 3z"></path><path fill-rule="evenodd" d="M8 0a8 8 0 100 16

    <span data-content="Issues">Issues</span>
      <span id="issues-repo-tab-count" data-pjax-replace="" data-turbo-replace="" title="0" hidden="hid

        <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-com
<path fill-rule="evenodd" d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177

      <span data-content="Pull requests">Pull requests</span>
        <span id="pull-requests-repo-tab-count" data-pjax-replace="" data-turbo-replace="" title="0" hid

          <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-com
<path fill-rule="evenodd" d="M1.5 8a6.5 6.5 0 1113 0 6.5 6.5 0 01-13 0zM8 0a8 8 0 100 16A8 8 0 008 0zM6

```

```
<span data-content="Actions">Actions</span>  
    <span id="actions-repo-tab-count" data-pjax-replace="" data-turbo-replace="" title="Not available"  
  
        <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-co  
<path fill-rule="evenodd" d="M0 1.75C0 .784 784 0 1.75 0h12.5C15.216 0 16 .784 16 1.75v12.5A1.75 1.75 0  
  
<span data-content="Projects">Projects</span>  
    <span id="projects-repo-tab-count" data-pjax-replace="" data-turbo-replace="" title="0" hidden="h  
  
        <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-co  
<path fill-rule="evenodd" d="M7.467 1.133a1.75 1.75 0 011.066 015.25 1.68A1.75 1.75 0 0115 3.48V7c0 1.566  
  
<span data-content="Security">Security</span>  
    <include-fragment src="/lukerobins1/MT5763_Zatoichi/security/overall-count" accept="text/fragment  
  
        <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-co  
<path fill-rule="evenodd" d="M1.5 1.75a.75.75 0 00-1.5 0v12.5c0 .414.336.75.75.75h14.5a.75.75 0 001.5  
  
<span data-content="Insights">Insights</span>  
    <span id="insights-repo-tab-count" data-pjax-replace="" data-turbo-replace="" title="Not availabl  
  
<div style="visibility:hidden;" data-view-component="true" class="UnderlineNav-actions js-responsive-un  
  
        <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-comp  
<path d="M8 9a1.5 1.5 0 100-3 1.5 1.5 0 000 3zM1.5 9a1.5 1.5 0 100-3 1.5 1.5 0 000 3zm13 0a1.5 1.5 0 10  
  
        <span class="sr-only">More</span>  
</div>
```

[Open in github.dev](https://github.dev/)

```
<header class="SelectMenu-header">
  <span class="SelectMenu-title">Switch branches/tags</span>
  <button class="SelectMenu-closeButton" type="button" data-toggle-for="branch-select-menu"><svg aria-l
<path fill-rule="evenodd" d="M3.72 3.72a.75.75 0 011.06 0L8 6.94l3.22-3.22a.75.75 0 111.06 1.06L9.06 8.1
```



```

</header>

<input-demux data-action="tab-container-change:input-demux#storeInput tab-container-changed:input-demux#storeInput"
  <tab-container class="d-flex flex-column js-branches-tags-tabs" style="min-height: 0;">
    <div class="SelectMenu-filter">
      <input data-target="input-demux.source"
        id="context-commitish-filter-field"
        class="SelectMenu-input form-control"
        aria-owns="ref-list-branches"
        data-controls-ref-menu-id="ref-list-branches"
        autofocus
        autocomplete="off"
        aria-label="Find or create a branch..."
        placeholder="Find or create a branch..."
        type="text"
      >
    </div>

    <div class="SelectMenu-tabs" role="tablist" data-target="input-demux.control" >
      <button class="SelectMenu-tab" type="button" role="tab" aria-selected="true">Branches</button>
      <button class="SelectMenu-tab" type="button" role="tab">Tags</button>
    </div>

    <div role="tabpanel" id="ref-list-branches" data-filter-placeholder="Find or create a branch..."
      <ref-selector
        type="branch"
        data-targets="input-demux.sinks"
        data-action="
          input-entered:ref-selector#inputEntered
          tab-selected:ref-selector#tabSelected
          focus-list:ref-selector#focusFirstListMember
        "
        query-endpoint="/lukerobins1/MT5763_Zatoichi/refs"
        can-create
        cache-key="v0:1636116629.420966"
        current-committish="bWFpbpg=="
        default-branch="bWFpbpg=="
        name-with-owner="bHVrZXJvYmluczEvTVQ1NzYzX1phdG9pY2hp"
        prefetch-on-mouseover
      >

      <template data-target="ref-selector.fetchFailedTemplate">
        <div class="SelectMenu-message" data-index="{{ index }}">Could not load branches</div>
      </template>

      <template data-target="ref-selector.noMatchTemplate">
    </div>
</div>
<create-repo-from-selector
  check-tag-name-exists-path="/lukerobins1/MT5763_Zatoichi/branches/check_tag_name_exists"
>
<!-- ''' --><!-- </textarea></xmp> --></option></form><form data-turbo="false" action="/lukerobins1/M
  <input data-target="create-repo-from-selector.refName" type="hidden" name="name" value="{{ refName }}">
  <input type="hidden" name="branch" value="main">
  <input type="hidden" name="path_binary" value="VGZayAzIC0gSmFja2tuaWZlL0phY2tLbmlmZS5SbWQ=">

```

```

<button
  class="SelectMenu-item wb-break-word"
  type="submit"
  role="menuitem"
  data-index="{{ index }}"
  data-action="click:create-repo-from-selector#createBranch"
  data-hydro-click="{&quot;event_type&quot;;:&quot;repository.click&quot;;,&quot;payload&quot;;:&quot;
<svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-compon
<path fill-rule="evenodd" d="M11.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113 2.12

<div>
  <span class="text-bold">Create branch: {{ refName }}</span>
  <span class="color-fg-muted">from 'main'</span>
  <input type="hidden" value="I1K1VnA1MG3dfuggYY7q4dORlnoH9QjaBMYE9nuEh7e2EbZGzmyiT3ibyXHJRES09dD
</div>
</button>

  <div data-target="ref-selector.listContainer" role="menu" class="SelectMenu-list " data-turbo-f
    <div class="SelectMenu-loading pt-3 pb-0 overflow-hidden" aria-label="Menu is loading">
      <svg style="box-sizing: content-box; color: var(--color-icon-primary);" width="32" height="32"
    </div>

{{ refName }} default

  <footer class="SelectMenu-footer"><a href="/lukerobins1/MT5763_Zatoichi/branches">View all branches</a>
</ref-selector>

</div>

<div role="tabpanel" id="tags-menu" data-filter-placeholder="Find a tag" tabindex="" hidden class="
  <ref-selector
    type="tag"
    data-action="
      input-entered:ref-selector#inputEntered
      tab-selected:ref-selector#tabSelected
      focus-list:ref-selector#focusFirstListMember
    "
    data-targets="input-demux.sinks"
    query-endpoint="/lukerobins1/MT5763_Zatoichi/refs"
    cache-key="v0:1636116629.420966"
    current-committish="bWFpbG=="
    default-branch="bWFpbG=="
    name-with-owner="bHVrZXJvYmluczEvTVQ1NzYzX1phdG9pY2hp"
  >

  <template data-target="ref-selector.fetchFailedTemplate">
    <div class="SelectMenu-message" data-index="{{ index }}">Could not load tags</div>
  </template>

  <template data-target="ref-selector.noMatchTemplate">
    <div class="SelectMenu-message" data-index="{{ index }}">Nothing to show</div>
  </template>

```



```

<li>
  <clipboard-copy data-toggle-for="blob-more-options-details" aria-label="Copy permalink" value="ht

    <span class="d-flex flex-items-baseline">
      <span class="flex-auto">Copy permalink</span>
    </span>

</li>

<svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-component="t
<path fill-rule="evenodd" d="M8.22 1.754a.25.25 0 0-.44 0L1.698 13.132a.25.25 0 0.22.368h12.164a.25.2

  <div class="overflow-hidden">This commit does not belong to any branch on this repository, and may be

    <div class="Skeleton avatar avatar-user flex-shrink-0 ml-n1 mr-n1 mt-n1 mb-n1" style="width:24px;heigh
    <div class="Skeleton Skeleton--text col-5 ml-2">&nbsp;</div>
  </div>

<div class="Box-body d-flex flex-items-center" >
  <div class="Skeleton Skeleton--text col-1">&nbsp;</div>
  <span class="color-fg-danger h6 loader-error">Cannot retrieve contributors at this time</span>
</div>

<div data-target="readme-toc.content" class="Box mt-3 position-relative">

  151 lines (129 sloc)
  <span class="file-info-divider"></span>
6.22 KB

<div class="BtnGroup">
  <a data-permalink-href="/lukerobins1/MT5763_Zatoichi/raw/33eba568a64768776ba81a7b590bcf677bf09f1c/T

Blame

<div class="d-flex">

  <div class="SelectMenu-modal width-full">
    <div class="SelectMenu-list SelectMenu-list--borderless py-2">
      <!-- '' --><!-- </textarea></xmp> --></option></form><form class="SelectMenu-item js-update-url-
      <button title="Edit this file" data-test-selector="edit-text-button" type="submit" data-view-
      <div class="color-fg-muted">E</div>

      <a aria-label="Open this file in github.dev" data-test-selector="github-dev-link" data-dropdown
      <div class="mr-5 no-wrap">Open in github.dev</div>
      <div class="color-fg-muted">.</div>

Open in GitHub Desktop

```

```

<!-- ' ' --><!-- </textarea></xmp> --></option></form><form class="inline-form" data-turbo="false"
  <button class="btn-octicon btn-octicon-danger tooltiped tooltiped-nw" type="submit"
    aria-label="Delete this file" data-disable-with>
    <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-com
<path fill-rule="evenodd" d="M6.5 1.75a.25.25 0 0 1.25-.25h2.5a.25.25 0 0 1.25.25V3h-3V1.75zm4.5 0V3h2.25

  </button>

<details class="dropdown details-reset details-overlay d-inline-block">
  <summary
    class="js-blob-dropdown-click btn-octicon"
    aria-haspopup="true"
    aria-label="possible actions"
    data-test-selector="small-screen-more-options"
    data-dropdown-tracking="{&quot;type&quot;:&quot;blob_edit_dropdown.more_options_click&quot;;&quot;
  >
    <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-compon
<path d="M8 9a1.5 1.5 0 100-3 1.5 1.5 0 000 3zM1.5 9a1.5 1.5 0 100-3 1.5 1.5 0 000 3zm13 0a1.5 1.5 0 100
  </summary>

  <ul class="dropdown-menu dropdown-menu-sw" style="width: 175px">
    <li>
      <a class="dropdown-item tooltiped tooltiped-nw js-remove-unless-platform"
        data-platforms="windows,mac"
        href="https://desktop.github.com">
          Open with Desktop
        </a>
    </li>
    <li>
      <a class="dropdown-item" href="/lukerobins1/MT5763_Zatoichi/raw/main/Task%203%20-%20Jackknife/J
        View raw
      </a>
    </li>
    <li>
      <remote-clipboard-copy class="dropdown-item" data-src="/lukerobins1/MT5763_Zatoichi/raw/main/

```

Copy raw contents Copy raw contents Copy raw contents Copy raw contents

```

  <li>
    <a class="dropdown-item" href="/lukerobins1/MT5763_Zatoichi/blame/main/Task%203%20-%20Jackknife/J
      View blame
    </a>
  </li>

  <li class="dropdown-divider" role="none"></li>
  <li>
    <a class="dropdown-item" href="/lukerobins1/MT5763_Zatoichi/edit/main/Task%203%20-%20Jackknife/J
  </li>
  <li>
    <a class="dropdown-item js-github-dev-shortcut js-blob-dropdown-click" data-test-selector=
  </li>
  <li>

```

```

        <a class="dropdown-item menu-item-danger" href="/lukerobins1/MT5763_Zatoichi/delete/main/Ta
    </li>
</ul>
</details>
</div>

```

```

<span>
  This file contains bidirectional Unicode text that may be interpreted or compiled differently than what
  <a href="https://github.co/hiddenchars" target="_blank">Learn more about bidirectional Unicode characters
</span>

```

```

    <a href="{ { revealButtonHref } }" data-view-component="true" class="btn-sm btn">      Show hidden characters

```

title: "Task 3: JackKnife"

output: pdf_document

Introduction

JackKnife is a re-sampling technique used for removing bias and statistical errors inherently present in the samples. In the presence of an unbiased sample, produces the same estimate as the original sample. It is a non-parametric method, and therefore free from all assumptions which are associated with the parametric method. It is mainly used for to reduce bias and to estimate variance for estimators such as variance and mean. It is used when the sample's underlying distribution is not discernible, the sample size is small and can also be used just as an alternative to the traditional methods. It uses a Leave-One-Out strategy, for making a large number of sub-samples from an original sample, giving us n samples each with n-1 data points. It doesn't perform well with non-smooth statistics such as median and non-linear statistics such correlation co-efficients[1][2]

Although conceptually more complex, it is computationally less intensive than bootstrap, it produces estimates similar to bootstrap, except for the variance estimate, as it does not involve any randomness. To this end its estimates are always the same for a given original sample, unlike bootstrapping which gives different results each time its run.[3]

Analytical and JackKnife Estimate Comparison for the Seals data

The Original sample's spread of data points can be seen by these two figures below (Figures 1 and 2). The Seal data set's box plot and histogram are indicative of a large variance.

```

{r, echo=FALSE, fig.cap=&quot;Boxplot for body lengths of the original seal's dataset.&quot;,fig.align=&quot;center&quot;,
out.width = &#39;50%&#39;}</span><span class="pl-s1"></span></td>
</tr>
<tr>
<td id="L14" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="14">
<td id="LC14" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-e">knitr</span></span><span class="pl-k">::</span>include_graphics(<span class="pl-s"><span
class="pl-pds">&quot;</span>~/Documents/R/MT5763/Assignment 3/Original Boxplot.png<span
class="pl-pds">&quot;</span></span></span></td>
</tr>
<tr>
<td
id="L15" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="15"></td>
<td id="LC15" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"></span><span
class="pl-c1">

```

```

{r, echo=FALSE, fig.cap=&quot;Histogram for body lengths of the original seal's
dataset.&quot;,fig.align=&#39;center&#39;, out.width = &#39;50%&#39;}</span><span class="pl-s1"></span></td>
</tr>
<tr>
<td id="L17" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="17"></td>
<td id="LC17" class="blob-code blob-code-inner

```

```
js-file-line"><span class="pl-s1"><span class="pl-e">knitr</span><span class="pl-k">::</span>include_graphics</span>
class="pl-s"><span class="pl-pds">&quot;</span>~/Documents/R/MT5763/Assignment 3/Original
Histogram.png<span class="pl-pds">&quot;</span></span></span></td>
<tr>
<td id="L18" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="18">
<td id="LC18" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"></span><span
class="pl-c1">
```

When we compare this to the JackKnife estimates of its replicates (Figures 3 and 4, box plot and histogram of means of its sub-samples) it shows that the variance in data has been reduced. This is because of the fact that by producing n replicates with $n-1$ samples each, JackKnife removes the bias in the variance estimate of the original data set. The original standard error of the mean lengths was 5.53, which is extremely large when compared to the JackKnife estimate, 0.55.

```
{r, echo=FALSE, fig.cap=&quot;Box plot for JackKnife estimate sample means .&quot;;,fig.align=&#39;center
out.width = &#39;50%&#39;}</span><span class="pl-s1"></span></td>
<tr>
<td id="L23" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="23">
<td id="LC23" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-e">knitr</span><span class="pl-k">::</span>include_graphics(<span class="pl-s"><span
class="pl-pds">&quot;</span>~/Documents/R/MT5763/Assignment 3/Jackknife Boxplot.png<span
class="pl-pds">&quot;</span></span></span></td>
<tr>
<td id="L24" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="24"></td>
<td id="LC24" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"></span><span
class="pl-c1">
```

```
{r, echo=FALSE, fig.cap=&quot;Histogram for JackKnife estimated means for its &#39;n&#39;
samples or replicates.&quot;;,fig.align=&#39;center&#39;;, out.width = &#39;50%&#39;}</span><span
class="pl-s1"></span></td>
<tr>
<td id="L26" class="blob-num
js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="26"></td>
<td id="LC26" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-e">knitr</span>
class="pl-k">::</span>include_graphics(<span class="pl-s"><span class="pl-pds">&quot;</span>~/Documents/
3/Jackknife Histogram.png<span class="pl-pds">&quot;</span></span></span></td>
<tr>
<td id="L27" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="27"></td>
<td id="LC27" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"></span><span class="pl-c1">
```

References

[1] NISBET, R., 2016. Handbook of statistical analysis and data mining applications. 2nd edition, Elsevier academic Press.

[2]Unkown, 'The JackKnife Approach', [online] Available at: <<http://www.hep.fsu.edu/~berg/teach/mcmc08/material/lecture05stat.pdf>> [Accessed 3 November 2021].

[3]Datasciencecentral.com. 2021. Resampling Methods: Bootstrap vs jackknife. [online] Available at: <<https://www.datasciencecentral.com/profiles/blogs/resampling-methods-comparison>> [Accessed 3 November 2021].

Appendix

SAS Code for the Task

```
{r, engine=&#39;sashtml&#39;}</span><span class="pl-s1"></span></td>
<tr>
<td id="L40" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="40">
<td id="LC40" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-e">knitr</span><span class="pl-k">::</span><span class="pl-smi">opts_chunk</span><span
class="pl-k">$</span>set(<span class="pl-v">echo</span> <span class="pl-k">=</span><span
class="pl-c1">TRUE</span></span></td>
<tr>
<td id="L41"
class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="41"></td>
<td id="LC41" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
```



```

<span class="pl-v">data</span><span class="pl-k">=</span><span class="pl-smi">seals</span>;</span></td>
</tr>
<tr>
<td id="L57" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="57"></td>
<td id="LC57" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">vbox</span> <span class="pl-smi">lengths</span>;</span>
</tr>
<tr>
<td id="L58" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="58"></td>
<td id="LC58" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">run</span></span></td>
</tr>
<tr>
<td id="L59" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="59"></td>
<td id="LC59" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"></span></td>
</tr>
<tr>
<td id="L60" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="60"></td>
<td id="LC60" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-c"><span class="pl-c">#</span></span>Calculating the true mean length of the dataset</span></span></td>
</tr>
<tr>
<td id="L61" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="61"></td>
<td id="LC61" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">proc</span> <span class="pl-smi">means</span>
<span class="pl-v">Data</span><span class="pl-k">=</span><span class="pl-smi">seals</span>;</span></td>
</tr>
<tr>
<td id="L62" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="62"></td>
<td id="LC62" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">var</span> <span class="pl-smi">lengths</span>;</span>
</tr>
<tr>
<td id="L63" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="63"></td>
<td id="LC63" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">output</span> <span class="pl-v">out</span><span
class="pl-k">=</span><span class="pl-smi">truemeans</span> <span class="pl-v">mean</span><span
class="pl-k">=</span><span class="pl-smi">mean</span>;</span></td>
</tr>
<tr>
<td id="L64" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="64">
<td id="LC64" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">run</span>;</span></td>
</tr>
<tr>
<td id="L65" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="65">
<td id="LC65" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-c"><span class="pl-c">#</span></span>mean of the original data set is 110.71628445</span></span></td>
</tr>
<tr>
<td id="L66" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="66">
<td id="LC66" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"></span></td>
</tr>
<tr>
<td id="L67" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="67">
<td id="LC67" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-c"><span class="pl-c">#</span></span>&#39;&size&#39; will now contain the number
of rows of the data set</span></span></td>
</tr>
<tr>
<td id="L68" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="68">
<td id="LC68" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">proc</span> <span class="pl-smi">sql</span> <span class="pl-smi">noprint</span>;</span></td>
</tr>
<tr>
<td id="L69" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="69">
<td id="LC69" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"> <span class="pl-smi">select</span> count(<span class="pl-k">*</span></span>
<span class="pl-smi">into</span> <span class="pl-k">:</span><span class="pl-smi">size</span>
<span class="pl-smi">from</span> <span class="pl-smi">seals</span>;</span></td>
</tr>
<tr>
<td id="L70" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="70">
<td id="LC70" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"> <span class="pl-smi">quit</span>;</span></td>
</tr>
<tr>
<td id="L71" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="71">
<td id="LC71" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-c"><span class="pl-c">#</span></span>calculating
the true standard deviation for the dataset</span></span></td>
</tr>
<tr>
<td id="L72" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="72">

```

```

<td id="LC72" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">proc</span> <span class="pl-smi">means</span> <span class="pl-v">data</span><span
class="pl-k">=</span><span class="pl-smi">seals</span>;</span></td>                </tr>                <tr>
<td id="L73" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="73">
<td id="LC73" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">var</span> <span class="pl-smi">lengths</span>;</span></td>                </tr>
<tr>                <td id="L74" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="74"></td>                <td id="LC74" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">output</span> <span class="pl-v">out</span><span
class="pl-k">=</span><span class="pl-smi">truestd</span> <span class="pl-v">std</span><span
class="pl-k">=</span><span class="pl-smi">standarddeviation</span>;</span></td>                </tr>
<tr>                <td id="L75" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="75"></td>                <td id="LC75" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">run</span>;</span></td>                </tr>
<tr>                <td id="L76" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="76"></td>                <td id="LC76" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-c"><span class="pl-c">#</span>Standard
deviation of the original sample is 5.5377124684<span class="pl-c">"</span></span></td>                </tr>
<tr>                <td id="L77" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="77"></td>                <td id="LC77" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"></span></td>                </tr>                <tr>                <td
id="L78" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="78"></td>
<td id="LC78" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-c"><span class="pl-c">#</span>assigning mean from the true means to &trueMean</span></span>
</tr>                <tr>                <td id="L79" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="79"></td>                <td id="LC79" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">data</span> <span class="pl-ii">_null_</span>;</span></td>
</tr>                <tr>                <td id="L80" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="80"></td>                <td id="LC80" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">set</span> <span class="pl-smi">truemeans</span></span>
</tr>                <tr>                <td id="L81" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="81"></td>                <td id="LC81" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">call</span> symput(<span class="pl-s"><span
class="pl-pds">&#39;</span>trueMean<span class="pl-pds">&#39;</span></span>,<span class="pl-smi">mean</span></span>
</tr>                <tr>                <td id="L82" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="82"></td>                <td id="LC82" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">run</span>;</span></td>                </tr>
<tr>                <td id="L83" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="83"></td>                <td id="LC83" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-c"><span class="pl-c">#</span>Creating
a new column &#39;rec<span class="pl-c">"</span> having 1-100 row values </span></span></td>                </tr>
<tr>                <td id="L84" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="84"></td>                <td id="LC84" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">data</span> <span class="pl-smi">test2</span><span
class="pl-k">=</span><span class="pl-v">view</span><span class="pl-k">=</span><span class="pl-smi">test2</span></span>;</span></td>                </tr>
<tr>                <td id="L85" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="85"></td>
<td id="LC85" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"> <span
class="pl-smi">set</span> <span class="pl-smi">seals</span>;</span></td>                </tr>
<tr>                <td id="L86" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="86"></td>                <td id="LC86" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"> <span class="pl-v">rec</span><span class="pl-k">=</span><span><span
class="pl-ii">_n_</span>; </span></td>                </tr>                <tr>                <td id="L87"
class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="87"></td>

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<td id="LC87" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"> <span
class="pl-smi">run</span>;</span></td>
</tr>
<tr>
<td id="L88"
class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="88"></td>
<td id="LC88" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"></span></td>
</tr>
<tr>
<td id="L89" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="89"></td>
<td id="LC89" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-c"><span class="pl-c">#</span>Creating
100 replicates each of 99 rows. Each &#39;replicate&#39; has different set of 99 rows,
using leave one out strategy. This will be our JackKnife Sample.</span></span></td>
</tr>
<tr>
<td id="L90" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="90"></td>
<td id="LC90" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-smi">proc</span> <span class="pl-smi">sql</span>
<span class="pl-smi">noprint</span>;</span></td>
</tr>
<tr>
<td
id="L91" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="91"></td>
<td id="LC91" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"> <span
class="pl-smi">create</span> <span class="pl-smi">table</span> <span class="pl-smi">outb</span>
<span class="pl-smi">as</span></span></td>
</tr>
<tr>
<td
id="L92" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="92"></td>
<td id="LC92" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"> <span
class="pl-smi">select</span> <span class="pl-smi">a.rec</span> <span class="pl-smi">as</span>
<span class="pl-smi">replicate</span>, <span class="pl-smi">b.</span><span class="pl-k">*</span></span></td>
</tr>
<tr>
<td id="L93" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="93"></td>
<td id="LC93" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"> <span class="pl-smi">from</span> <span class="pl-smi">test2</span>
<span class="pl-smi">a</span>, <span class="pl-smi">test2</span> <span class="pl-smi">b</span></span></td>
</tr>
<tr>
<td id="L94" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="94"></td>
<td id="LC94" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"> <span class="pl-smi">where</span> <span class="pl-smi">a.rec</span><span
class="pl-k">^</span><span class="pl-k">=</span><span class="pl-smi">b.rec</span>;</span></td>
</tr>
<tr>
<td id="L95" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="95"></td>
<td id="LC95" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"> <span class="pl-smi">quit</span>; </span></td>
</tr>
<tr>
<td id="L96" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum"
data-line-number="96"></td>
<td id="LC96" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"> </span></td>
</tr>
<tr>
<td id="L97" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="97"></td>
<td id="LC97" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"> <span
class="pl-smi">ods</span> <span class="pl-smi">listing</span> <span class="pl-smi">close</span>;</span>
</td>
</tr>
<tr>
<td id="L98" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="98"></td>
<td id="LC98" class="blob-code blob-code-inner
js-file-line"><span class="pl-s1"><span class="pl-c"><span class="pl-c">#</span>Calculating
the JackKnife Sample mean for each replicate.</span></span></td>
</tr>
<tr>
<td id="L99" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="99">
<td id="LC99" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"> <span
class="pl-smi">proc</span> <span class="pl-smi">univariate</span> <span class="pl-v">data</span><span
class="pl-k">=</span><span class="pl-smi">outb</span>;</span></td>
</tr>
<tr>
<td id="L100" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="100">
<td id="LC100" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"> <span
class="pl-smi">var</span> <span class="pl-smi">lengths</span>;</span></td>
</tr>
<tr>
<td id="L101" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="101"></td>
<td id="LC101" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"> <span class="pl-smi">by</span> <span
class="pl-smi">replicate</span>;</span></td>
</tr>
<tr>
<td
id="L102" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="102"></td>

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<td id="LC102" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"> <span
class="pl-smi">output</span> <span class="pl-v">out</span><span class="pl-k">=</span><span
class="pl-smi">outall</span> <span class="pl-v">mean</span><span class="pl-k">=</span><span
class="pl-smi">mean</span>;</span></td>          </tr>          <td id="L103"
class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="103"></td>
<td id="LC103" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"> <span
class="pl-smi">run</span>;</span></td>          </tr>          <td id="L104"
class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="104"></td>
<td id="LC104" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"> <span
class="pl-c"><span class="pl-c">#</span></span>Analysing the spread of data points for the
JackKnifed collection of samples (JackKnife data set). </span></span></td>          </tr>
<tr>          <td id="L105" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="105"></td>          <td id="LC105" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"></span></td>          </tr>          <tr>
<td id="L106" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="106">
<td id="LC106" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-c"><span class="pl-c">#</span></span>Using Histogram to visualize the spread.</span></span></td>
</tr>          <tr>          <td id="L107" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="107"></td>          <td id="LC107" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"> <span class="pl-smi">proc</span> <span
class="pl-smi">univariate</span> <span class="pl-v">data</span><span class="pl-k">=</span><span
class="pl-smi">outall</span>;</span></td>          </tr>          <td id="L108"
class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="108"></td>
<td id="LC108" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">histogram</span> <span class="pl-smi">mean</span><span class="pl-k">=</span></span>
<span class="pl-v">ctext</span><span class="pl-k">=</span><span class="pl-smi">black</span>;</span></td>
</tr>          <tr>          <td id="L109" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="109"></td>          <td id="LC109" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">run</span>;</span></td>
</tr>          <tr>          <td id="L110" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="110"></td>          <td id="LC110" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-c"><span class="pl-c">#</span></span>Using
Boxplot to visualize the spread.</span></span></td>          </tr>          <td
id="L111" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="111"></td>
<td id="LC111" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">proc</span> <span class="pl-smi">sgplot</span> <span class="pl-v">data</span><span
class="pl-k">=</span><span class="pl-smi">outall</span>;</span></td>          </tr>          <tr>
<td id="L112" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="112">
<td id="LC112" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">vbox</span> <span class="pl-smi">mean</span>;</span></td>          </tr>
<tr>          <td id="L113" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="113"></td>          <td id="LC113" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">run</span>;</span></td>
</tr>          <tr>          <td id="L114" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="114"></td>          <td id="LC114" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-c"><span class="pl-c">#</span></span>Calcula
the JackKnife Standard Error in 4 steps. </span></span></td>          </tr>          <tr>
<td id="L115" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="115">
<td id="LC115" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-c"><span class="pl-c">#</span></span>1. 1st Step is calculation of the squared difference
for each sample.</span></span></td>          </tr>          <tr>          <td id="L116"
class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="116"></td>
<td id="LC116" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">data</span> <span class="pl-smi">outall</span>;</span></td>          </tr>

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<tr>
    <td id="L117" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="117"></td>
    <td id="LC117" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">set</span> <span
class="pl-smi">outall</span>;</span></td>
    </tr>
    <tr>
    <td id="L118"
class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="118"></td>
    <td id="LC118" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">by</span> <span class="pl-smi">replicate</span>;</span></td>
    </tr>
    <tr>
    <td id="L119" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="119"></td>
    <td id="LC119" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-v">difference</span><span
class="pl-k">=</span>(<span class="pl-smi">mean</span><span class="pl-k">-</span><span class="pl-k">&lt;span
class="pl-k">&lt;span class="pl-smi">trueMean</span></span><span class="pl-k">*</span><span
class="pl-c1">2</span>;</span></td>
    </tr>
    <tr>
    <td id="L120"
class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="120"></td>
    <td id="LC120" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">run</span>;</span></td>
    </tr>
    <tr>
    <td id="L121"
class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="121"></td>
    <td id="LC121" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"></span></td>
    </tr>
    <tr>
    <td id="L122" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="122"></td>
    <td id="LC122" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"></span></td>
    </tr>
    <tr>
    <td id="L123" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="123"></td>
    <td id="LC123" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-c"><span class="pl-c">#</span>2. Adding all the differences from all the Replicates.</span></td>
    </tr>
    <tr>
    <td id="L124" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="124"></td>
    <td id="LC124" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">proc</span> <span
class="pl-smi">sql</span>;</span></td>
    </tr>
    <tr>
    <td id="L125" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="125"></td>
    <td id="LC125" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">create</span> <span class="pl-smi">table</span> <span class="pl-smi">work.differenceSum</span>
<span class="pl-smi">as</span></span></td>
    </tr>
    <tr>
    <td id="L126" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="126"></td>
    <td id="LC126" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">select</span> sum(<span class="pl-smi">difference</span>) <span class="pl-smi">as</span>
<span class="pl-smi">sumOfDiff</span></span></td>
    </tr>
    <tr>
    <td id="L127" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="127"></td>
    <td id="LC127" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">from</span> <span class="pl-smi">work.outall</span>;</span></td>
    </tr>
    <tr>
    <td id="L128" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="128"></td>
    <td id="LC128" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">quit</span>;</span></td>
    </tr>
    <tr>
    <td id="L129" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="129"></td>
    <td id="LC129" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-c"><span class="pl-c">#</span>3.
&lt;span>diffSum is now assigned the Sum of differences of all samples. </span></span></td>
    </tr>
    <tr>
    <td id="L130" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="130"></td>
    <td id="LC130" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">proc</span> <span
class="pl-smi">print</span> <span class="pl-v">data</span><span class="pl-k">=</span><span
class="pl-smi">work.differenceSum</span>;</span></td>
    </tr>
    <tr>
    <td id="L131" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="131"></td>
    <td id="LC131" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">data</span> <span class="pl-smi">differenceSum</span>;</span></td>
    </tr>

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<tr>
    <td id="L132" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="132"></td>
    <td id="LC132" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">set</span> <span
class="pl-smi">differenceSum</span>;</span></td>
    </tr>
    <tr>
    <td id="L133" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="133"><
    <td id="LC133" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">call</span> symput(<span class="pl-s"><span class="pl-pds">&#39;</span>diffSum<span
class="pl-pds">&#39;</span></span>, <span class="pl-smi">sumofdiff</span>);</span></td>
    </tr>
    <tr>
    <td id="L134" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="134"></td>
    <td id="LC134" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">run</span>;</span></td>
    </tr>
    <tr>
    <td id="L135" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="135"></td>
    <td id="LC135" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-c"><span class="pl-c">#</span>4.
Getting the number of sample size to multiply, to form the JackKnife StandardError equation.</span></sp>
    </tr>
    <tr>
    <td id="L136" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="136"></td>
    <td id="LC136" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">a.</span> <span
class="pl-smi">This</span> <span class="pl-smi">will</span> <span class="pl-smi">give</span>
<span class="pl-smi">us</span> <span class="pl-smi">the</span> <span class="pl-smi">number</span>
<span class="pl-c1">99</span>, <span class="pl-smi">the</span> <span class="pl-smi">sample</span>
<span class="pl-smi">size</span> <span class="pl-k">for</span> <span class="pl-smi">each</span>
<span class="pl-smi">individual</span> <span class="pl-smi">replicate</span></span></td>
    </tr>
    <tr>
    <td id="L137" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="137"></td>
    <td id="LC137" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">data</span> <span
class="pl-smi">have</span>;</span></td>
    </tr>
    <tr>
    <td id="L138" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="138"></td>
    <td id="LC138" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">do</span> <span class="pl-v">n</span><span class="pl-k">=</span><span
class="pl-c1">1</span> <span class="pl-smi">to</span> <span class="pl-k">&lt;/span><span
class="pl-smi">size</span><span class="pl-k">-</span><span class="pl-c1">2</span>;</span></td>
    </tr>
    <tr>
    <td id="L139" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="139"></td>
    <td id="LC139" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">end</span>;</span></td>
    </tr>
    <tr>
    <td id="L140" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="140"></td>
    <td id="LC140" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">output</span>;</span></td>
    </tr>
    <tr>
    <td id="L141" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="141"></td>
    <td id="LC141" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">run</span>;</span></td>
    </tr>
    <tr>
    <td id="L142" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="142"></td>
    <td id="LC142" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-c"><span class="pl-c">#</span>b.
Using the equation to calculate the JackKnife Standard Error</span></span></td>
    </tr>
    <tr>
    <td id="L143" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="143"></td>
    <td id="LC143" class="blob-code
blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-smi">data</span> <span
class="pl-smi">JstdError</span>;</span></td>
    </tr>
    <tr>
    <td id="L144" class="blob-num js-line-number js-code-nav-line-number js-blob-rnum" data-line-number="144"><
    <td id="LC144" class="blob-code blob-code-inner js-file-line"><span class="pl-s1"><span
class="pl-smi">set</span> <span class="pl-smi">have</span>;</span></td>
    </tr>
    <tr>
    <td id="L145" class="blob-num js-line-number js-code-nav-line-number
js-blob-rnum" data-line-number="145"></td>
    <td id="LC145" class="blob-code

```

```

blob-code-inner js-file-line"><span class="pl-s1"><span class="pl-v">JStd_Error</span><span
class="pl-k">=</span>sqrt((<span class="pl-smi">n</span><span class="pl-k">-</span><span
class="pl-c1">1</span></span><span class="pl-k">*</span><span class="pl-k">&amp;</span><span
class="pl-smi">diffSum</span><span class="pl-k">/</span><span class="pl-smi">n</span></span>);</span></td>
</tr>


```

Copy lines

Copy permalink

View git blame

Reference in new issue

</div>

</div>

Go

<div class="pt-3" >

<details class="details-reset details-overlay details-overlay-dark " >

<summary data-view-component="true" class="btn-link"> Give feedback

<button class="Box-btn-octicon btn-octicon float-right" type="button" aria-label="Close dialog" data-

<svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-component>
<path fill-rule="evenodd" d="M3.72 3.72a.75.75 0 011.06 1.06L9.06 8.1

</button>

<h1 class="Box-title" >Provide feedback</h1>

</div>

<div class="Box-body overflow-auto">

<include-fragment>

<svg style="box-sizing: content-box; color: var(--color-icon-primary);" width="32" height="32" >

</div>

</div>

Footer

```

<div class="list-style-none d-flex flex-wrap col-0 col-lg-2 flex-justify-start flex-lg-justify-between"
  <div class="mt-2 mt-lg-0 d-flex flex-items-center">
    <a aria-label="Homepage" title="GitHub" class="footer-octicon mr-2" href="https://github.com">
      <svg aria-hidden="true" height="24" viewBox="0 0 16 16" version="1.1" width="24" data-view-component=
<path fill-rule="evenodd" d="M8 0C3.58 0 0 3.58 0 8c0 3.54 2.29 6.53 5.47 7.59.4.07.55-.17.55-.38 0-.19

```

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<span class="f6 color-fg-muted"></span>

```

```

<svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-component="t
<path fill-rule="evenodd" d="M8.22 1.754a.25.25 0 00-.44 0L1.698 13.132a.25.25 0 00.22.368h12.164a.25.25

```

```

<button type="button" class="flash-close js-ajax-error-dismiss" aria-label="Dismiss error">
  <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-component=
<path fill-rule="evenodd" d="M3.72 3.72a.75.75 0 011.06 0L8 6.9413.22-3.22a.75.75 0 111.06 1.06L9.06 8.1

```

```

</button>

```

You can't perform that action at this time.

```

<svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-component="t
<path fill-rule="evenodd" d="M8.22 1.754a.25.25 0 00-.44 0L1.698 13.132a.25.25 0 00.22.368h12.164a.25.25

```

```

<span class="js-stale-session-flash-signed-in" hidden>You signed in with another tab or window. <a href=
<span class="js-stale-session-flash-signed-out" hidden>You signed out in another tab or window. <a href=

```

```

<clipboard-copy aria-label="Copy" class="ClipboardButton btn js-clipboard-copy m-2 p-0 tooltipped-no-de
  <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-component=
<path fill-rule="evenodd" d="M0 6.75C0 5.784.784 5 1.75 5h1.5a.75.75 0 010 1.5h-1.5a.25.25 0 00-.25.25v

```

```

  <svg aria-hidden="true" height="16" viewBox="0 0 16 16" version="1.1" width="16" data-view-component=
<path fill-rule="evenodd" d="M13.78 4.22a.75.75 0 010 1.061-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75

```

```

</clipboard-copy>

```