**Requirements Specification Document**

1. **Requirements Introduction:**The system being designed is MySampleSize, a statistical calculation webapp. The website features many tools to aid users carry out statistical calculations by simply inputting basic numerical data and receiving a corresponding output. These tools are the following: Sample size calculator, statistical power calculator, power plots, simulations, random number generator, and data analysis. Additionally, the main feature of the site is the design guide, a step-by-step questionnaire to properly design an experiment and to receive the statistics about carrying out the experiment such that is accurately reproducible. The upcoming sections of this document are for the following information: 5.2 – Functional requirements, 5.3 – Performance requirements, 5.4 – Environment requirements.
2. **Functional requirements**
   1. Graphical user interface  
      1. The graphical user interface (GUI) shall include a way for users to navigate the websites features.  
         The navigation options will include the following:

Home  
Design Guide  
Tools

Reports  
Help

* + 1. The GUI’s navigation system shall be always present on screen.
    2. The GUI’s navigation system shall ensure users to never have to backtrack to reach other sections of the site.
    3. The GUI’s navigation system will have sub-menus where applicable to minimize user inputs to reach all parts of site.
    4. The GUI shall include all necessary information for user inputs to minimize user error.
    5. The GUI shall include pop-ups to provide users with more detail where needed, to keep the aesthetic from feeling cramped.
    6. The GUI shall clearly differentiate between interactable parts of the site and sections that are just descriptions.
    7. The GUI’s navigation system shall be responsive to user actions.
    8. The GUI’s navigation system shall react visually to users hovering over options.
  1. PDF output
     1. The PDF output shall be well formatted.
     2. The PDF output shall be easily legible.
     3. The PDF output shall be descriptive such that the user understands the content.
     4. The PDF output shall correctly display data as provided by the user.
     5. The PDF output shall include correctly generated diagrams (graphs and tables)
     6. The PDF output’s diagrams shall include mathematically correct values.
     7. The PDF output shall be well organized such that no content is cut off between pages.

1. **Performance requirements**
   1. Calculation return
      1. The webapp shall complete calculation and return a value within 3 seconds of a user’s requesting a tool’s usage.
      2. The webapp shall return a calculation to user in a place that is logical and immediately findable.
      3. The webapp will update graphs in the tools sections within 1 second a user modifying inputs.
   2. Design Guide
      1. The webapp shall create a PDF report with the desired data within 15 seconds of a user request.
      2. The webapp shall quickly move between steps of the design guide.
      3. The webapp shall immediately fill design guide options for walkthrough instances.
2. **Environment requirements**Following are the software requirements for MySampleSize:

|  |  |
| --- | --- |
| Category | Requirement |
| Operating System | Windows 10 (or higher)/ macOS Sonoma 14.2 (or higher) |

The above operating systems are required as testing was done on these versions, and the app is known to work for these versions.

Following are the Python dependencies for the program for Python 3.9:

|  |  |
| --- | --- |
| Dependency | Version |
| asn1crypto | 0.24.0 |
| Authlib | 0.11 |
| blinker | 1.4 |
| cairocffi | 0.9.0 |
| CairoSVG | 2.3.0 |
| certifi | 2019.3.9 |
| cffi | 1.16.0 |
| chardet | 3.0.4 |
| Click | 7.0 |
| cryptography | 2.6.1 |
| cssmin | 0.2.0 |
| cssselect2 | 0.2.1 |
| defusedxml | 0.5.0 |
| Flask | 1.1.1 |
| Flask-Assets | 0.12 |
| Flask-Mail | 0.9.1 |
| Flask-WeasyPrint | 0.6 |
| html5lib | 1.0.1 |
| idna | 2.8 |
| itsdangerous | 1.1.0 |
| Jinja2 | 2.10.1 |
| jsmin | 3.0.1 |
| libsass | 0.23.0 |
| MarkupSafe | 1.1.1 |
| numpy | 1.26.3 |
| ordered-set | 3.1.1 |
| pandas | 1.3.5 |
| patsy | 0.5.2 |
| pillow | 10.2.0 |
| pycparser | 2.19 |
| PyLaTeX | 1.3.0 |
| Pyphen | 0.9.5 |
| python-dateutil | 2.8.0 |
| pytz | 2019.1 |
| requests | 2.22.0 |
| rpy2 | 3.1.0 |
| scipy | 1.12.0 |
| six | 1.12.0 |
| statsmodels | 0.12.2 |
| stripe | 2.27.0 |
| tinycss2 | 1.0.2 |
| urllib3 | 1.24.1 |
| virtualenv | 16.4.3 |
| WeasyPrint | 47 |
| webassets | 0.12.1 |
| webencodings | 0.5.1 |
| Werkzeug | 1.0.1 |