

1. Pseudocode for the Main body program:

```
Import tkinter library to execute GUI on program
Import messagebox module from tkinter to show errors and info
Import JSON module to read and write data in JSON format
Import random module to generate random fast-food items and components

Class definition of MyGUI
    Constructor definition
        Creation of main window using tkinter
        Generation of main window title
        Definition of main window size
        Put main window in the middle of the display
        Prevent the main window from being resized

        Creation of top frame for first question label
        Creation of middle frame for random component label
        Creation of bottom frame for regular buttons widgets

    Try run next block of code
        Open JSON file 'data.txt' in read mode
        Set new data attribute with JSON form key and value
        if number of items in data is less than 2
            Show an error message 'Invalid File, data.txt contain less than 2 items'
            Ends the program cleanly

    except for file not found
        Show an error message 'Missing data.txt file'
        Ends the program cleanly
    Close file

    Set components attribute fast-food names components on a list

    Create label one 'Which one has more...' on top frame
    Pack label one in the top of frame

    Create label two Nutritional Component on middle frame
    Pack label two in the top of frame

    Create left button on bottom frame with certain characteristics and call check answer function
    Create middle button on bottom frame with certain characteristics and call check answer function
    Create right button on bottom frame with certain characteristics and call check answer function

    Pack left button on side left of frame
    Pack middle button on side left of frame
    Pack right button on side left of frame

    Pack top frame
```

```
Pack middle frame
Pack bottom frame
```

Call `show question` function to display first question on main window

Start the endlessly `mainloop` depending on tkinter

2. Pseudocode for the functions defined in / used by the program:

Define `show question` function

Select one random `nutritional component` from `components` list

Set `nutritional component` on label two with uppercase letters

Set `random items` with two items from `data` list

Clear `left button` text displayed for possible next question in the GUI

Clear `right button` text displayed for possible next question in the GUI

for iteration into `random items` list

Create `temporary dictionary` with `itemlist` on iteration

for iteration into `temporary dictionary` with key `itemdictionary` and value `detail`

if the key in `temporary dictionary` is equal to `'name'`

Set initial `temporary left` text to set suitable text on buttons

if the `temporary left` is empty

Set name of item to the left button

else

Set name of item to the right button

Define `check answer` function with `choice` argument

Initialize value for `left choice` to compare

Initialize value for `right choice` to compare

for iteration into `random items` list

Create `temporary dictionary` with `itemlist` on iteration

for iteration `temporary dictionary` with key `itemdictionary` and value `detail`

if the key in `temporary dictionary` is equal to `nutritional component`

if left button is empty

Set detail as integer of the `temporary value left` of component for left button choice

else

Set detail as integer of the `temporary value right` of component for right button choice

if choice is `left`

if `temporary value left` of component is greater than `temporary value right`

Show an info `correct` message `'You got it right.'`

if `temporary value left` of component is less than `temporary value right`

Show an error `Incorrect` message `'You got it wrong.'`

if `temporary value left` of component is equal to `temporary value right`

Show an error **Incorrect** message 'You got it wrong.'

if choice is **right**

if temporary value left of component is less than temporary value right

Show an info **correct** message 'You got it right.'

if temporary value left of component is greater than temporary value right

Show an error **Incorrect** message 'You got it wrong.'

if temporary value left of component is equal to temporary value right

Show an error **Incorrect** message 'You got it wrong.'

if choice is **middle**

Set the smaller value between both nutritional components

Set the higher value between both nutritional components

Calculate percentage value as a float to compare if is at least 90%

if percentage value is greater or equal than 90% and less or equal to 100%

Show an info **correct** message 'You got it right.'

else

Show an error **Incorrect** message 'You got it wrong.'

Call **show question** function again to display next possible question on main window

Create an instance of the **MyGUI** class