**Project Number 2**

**Random Number Game With GUI**

**Overview of the Program**

This is a **number guessing game** built using **Python Tkinter GUI**.  
It shows 3 buttons — each with a random number between 0 and 100.  
One of the numbers is secretly selected. You have to guess which one by clicking.

If you guess correctly, a message says **“yes it was [number]”**.  
If wrong, it says **“wrong choice bhai”**.

### ✅ from tkinter import \*

* This line imports **everything** from Tkinter.
* Tkinter is the standard GUI toolkit for Python.
* By using \*, we can access components like Label, Button, Tk, etc., directly without prefixing them with tkinter..

### ✅ import random

* Imports Python’s built-in random module.
* Used to **generate random numbers** and **choose items randomly** (e.g., randint, choice).
* Essential for our game to generate new numbers each time.

### ✅ root = Tk()

* Initializes the **main GUI window**.
* All GUI elements are placed inside this root window.

### ✅ root.title("Aditya")

* Sets the **title** of the window to "Aditya".
* This appears in the window's title bar.

### ✅ root.geometry("250x150")

* Sets the **size of the window** to 250 pixels wide by 150 pixels high.

### ✅ secret\_number = 'none'

* A **global variable** that stores the **correct number** you have to guess.
* Initially set to 'none', and it will be replaced with the **text from a randomly selected button**.

## Function: StartGame()

**def StartGame():**

**global secret\_number**

* Declares a function to **initialize or reset** the game.
* global secret\_number is used so the function can **update** the global variable instead of creating a new local one.

### 🔁 Loop: Assign Random Numbers

**for button in button\_list:**

**button.config(text=str(random.randint(0, 100)))**

* Loops through each button in button\_list.
* random.randint(0, 100) generates a random number between 0 and 100.
* button.config(...) is used to **change the properties** of an existing widget (in this case, updating its text to show a new number).

#### What is .config()?

* .config() is a Tkinter method to **change the properties** of a widget (like color, size, text, etc.) **after it has been created**.
* Here it's used to **change the button label (text)** dynamically.

### 🎯 Select Secret Number

**randomButton = random.choice(button\_list)**

**secret\_number = randomButton.cget('text')**

* random.choice(button\_list) randomly picks **one of the 3 buttons**.
* .cget('text') gets the **current text displayed** on that button.
* That number becomes the **correct answer** stored in secret\_number.

#### What is .cget()?

* .cget('property') fetches the **current value** of a widget’s property.
* Example: button.cget('text') returns the button’s label text.

### Debug Print

print("Secret Number is:", secret\_number)

* Just prints the secret number in the console for testing or debugging.

## 🖱️ Function: OnClick(event)

**def OnClick(event):**

* This function runs **when the user clicks** on a button.
* event carries information about **which button** was clicked.

### Get Clicked Button's Text

**btn = event.widget**

**buttonText = btn.cget('text')**

* event.widget gives the **button widget** that was clicked.
* btn.cget('text') fetches the **label** on the clicked button (the number displayed).

### ✅ Check if Guess is Correct

**if secret\_number == buttonText:**

**answer\_label.config(text="yes it was " + secret\_number)**

**StartGame()**

* Compares the clicked number with secret\_number.
* If correct:
  + Updates the label to say "yes it was ..."
  + Calls StartGame() to restart the game with new numbers.

### ❌ If Wrong

**else:**

**answer\_label.config(text="wrong choice bhai")**

**StartGame()**

* If the guess is incorrect:
  + Shows the message “wrong choice bhai”.
  + Calls StartGame() again to reset numbers.

## GUI Elements

### **Title Label**

**title\_label = Label(root, text="Guess the Number", font=("Helvetical 12"), pady=8, justify="center")**

* Displays the **title of the game**.
* pady=8: Adds vertical spacing.
* justify="center": Aligns text centrally (useful in multi-line labels).

### **Buttons**

**button\_one = Button(root, font=("Helvetical 15"), text="00", width=6, pady=15, bg="palegreen")**

...

* Each button is styled with:
  + Initial text="00"
  + font, width, and pady for size and spacing
  + bg for color
* These values will be updated later using .config().

### **💡 Why button\_list is created**

**button\_list = [button\_one, button\_two, button\_three]**

* button\_list is a **list of all 3 buttons**.
* Helps us **loop through all buttons easily** instead of repeating code.
* This list is used in:
  + StartGame() to assign random numbers.
  + random.choice() to randomly pick the secret button.

### **Answer Label**

**answer\_label = Label(root, text="Answer", font=("Helvetical 15"), pady=9, fg="purple", justify="center")**

* Displays the result after a button is clicked — whether your guess was correct or wrong.
* Initially shows "Answer".

## Placing Widgets using .grid()

**title\_label.grid(row=0, column=0, columnspan=3)**

* grid() places widgets in a table layout (rows and columns).
* columnspan=3 makes title and answer labels stretch across all 3 columns.

## 🔗 Event Binding

**button\_one.bind('<Button-1>', OnClick**)

* Binds a **left mouse click** event (<Button-1>) to a button.
* Calls the OnClick() function with an event object that tells us which button was clicked.

## 🔁 Start the Game and Main Loop

**StartGame()**

**root.mainloop()**

* StartGame() is called once to **set random numbers** and choose a secret one.
* mainloop() keeps the GUI running and responsive.

## ✅ Summary Table

| **Component** | **Purpose** |
| --- | --- |
| **Tk()** | **Create GUI window** |
| **config()** | **Update widget properties (like button text)** |
| **cget()** | **Get current widget property value** |
| **random.randint()** | **Generate random number** |
| **random.choice()** | **Pick a random item from a list** |
| **button\_list** | **Store all buttons for looping and random selection** |
| **bind()** | **Link a click event to a function** |
| **StartGame()** | **Set/reset the game with new random numbers** |
| **OnClick()** | **Handles click, checks if guess is correct** |
| **Label** | **Display title and result** |
| **Button** | **Interactive number choices** |