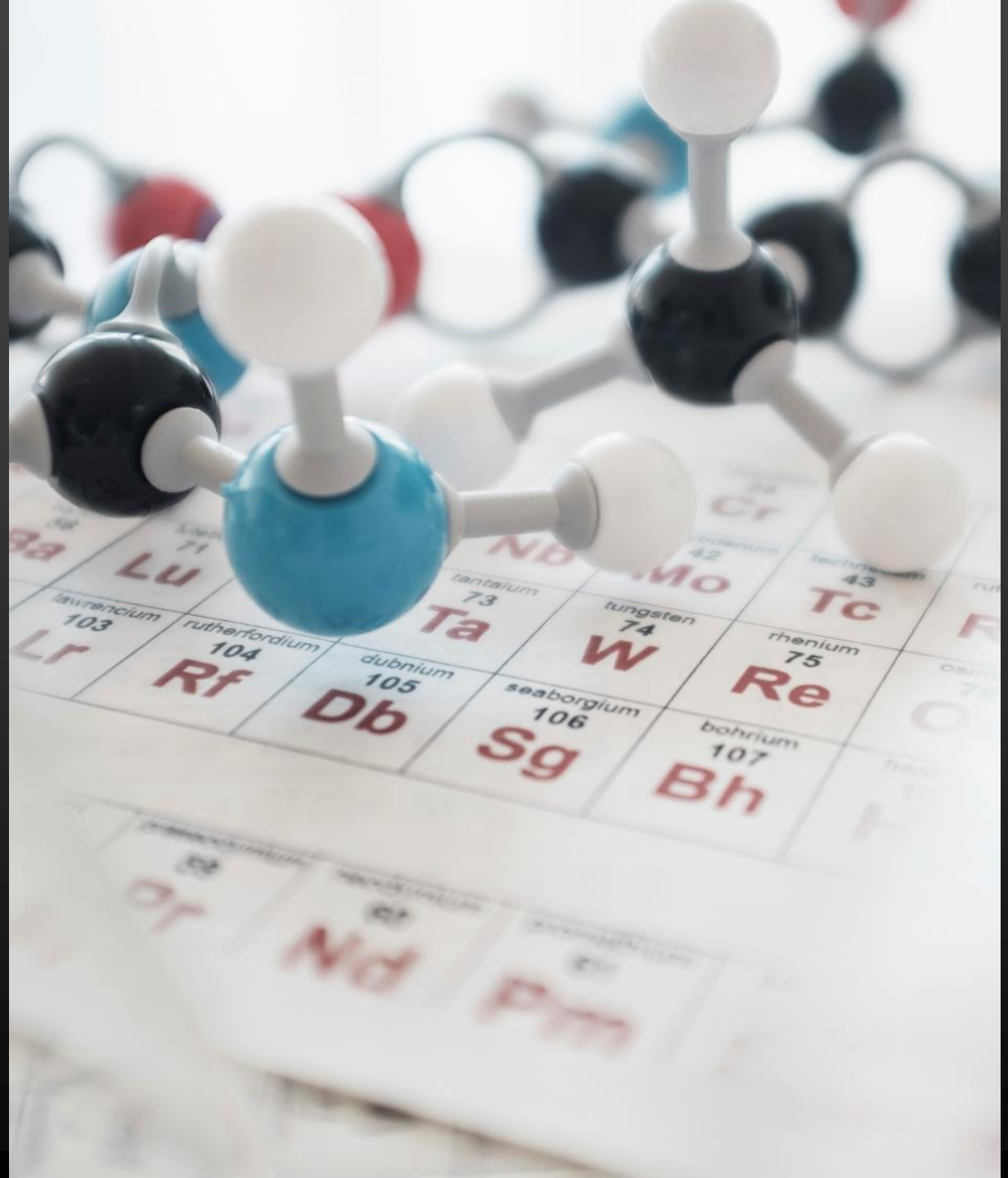
Cancer Risk Assessment Calculator

Kusuma Korada



Project Overview: Cancer Risk Calculator

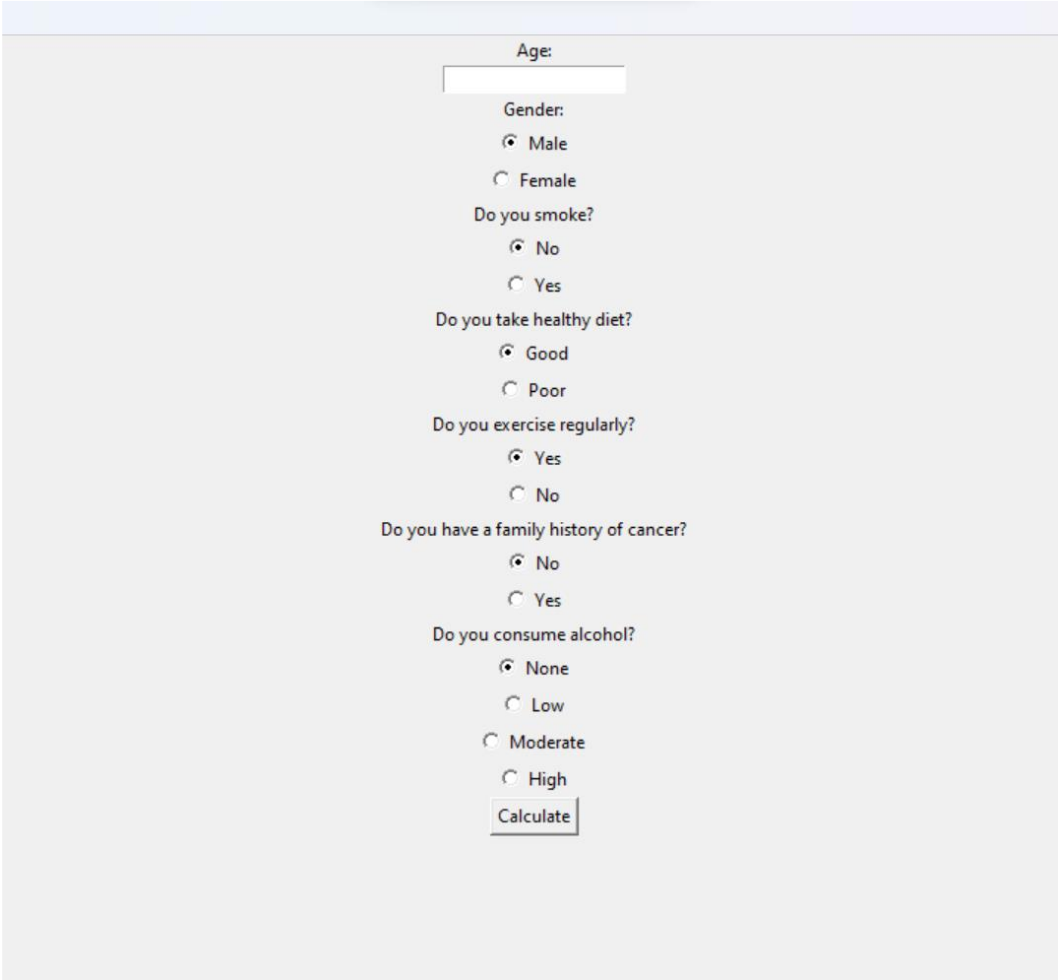
Plan: To develop a GUI-based Cancer Risk Calculator in Python that will help users to calculate their risk of developing cancer based on several factors, such as age, gender, smoking, diet, exercise, family history, and alcohol consumption.

Modules: GUI and Functions.

Dataflow/Major Functionalities: Users will use GUI to input their information on several factors, such as age, gender, smoking, diet, exercise, family history, and alcohol consumption. The entered data will be processed using the defined functions to calculate the risk level of developing cancer. The calculated risk level will be displayed on the GUI in a label.

Input: User's information on age, gender, smoking, diet, exercise, family history, and alcohol consumption.

Output: Risk level of developing cancer



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Major Applications

- The Cancer Risk Assessment Calculator is designed to help individuals determine their risk of developing cancer. The calculator takes into account various factors such as age, gender, smoking habits, diet, exercise, family history, and alcohol consumption to determine the risk level of the individual.
- This tool can be used by healthcare professionals to educate and counsel their patients on how to reduce their risk of developing cancer

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Long Term Goals

- The long-term goal of the Cancer Risk Assessment Calculator is to develop a comprehensive cancer risk assessment tool that incorporates genetic and environmental risk factors.
- The tool can be integrated with Electronic Health Records (EHRs) and other health information systems to provide healthcare providers with accurate and up-to-date information on their patients' cancer risk.
- Additionally, the tool can be used in clinical research to identify high-risk individuals and develop personalized prevention and treatment plans

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Python Code

```
import tkinter as tk

# Create the main window
window = tk.Tk()
window.title("Cancer Risk Calculator")

# Create a function to calculate the risk level
def calculate_risk():
    # Get the user's inputs
    age = int(age_entry.get())
    gender = gender_var.get()
    smoking = smoking_var.get()
    diet = diet_var.get()
    exercise = exercise_var.get()
    family_history = family_var.get()
    alcohol = alcohol_var.get()

    # Calculate the risk level
    risk_level = 0

    if age >= 50:
        risk_level += 2

    if gender == "Female":
        risk_level += 1

    if smoking == "Yes":
        risk_level += 3

    if diet == "Poor":
        risk_level += 2

    if exercise == "No":
        risk_level += 2

    if family_history == "Yes":
        risk_level += 2

    if alcohol == "Moderate":
        risk_level += 2
    elif alcohol == "Heavy":
```

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Python Code

```
    elif alcohol == "Heavy":
        risk_level += 3

    # Determine risk level description
    if risk_level < 5:
        risk_desc = "low"
    elif risk_level < 9:
        risk_desc = "average"
    else:
        risk_desc = "high"

    # Display the result in a label
    result_label.config(text=f"Your risk of developing cancer is {risk_desc}.")

# Create age input
age_label = tk.Label(window, text="Age:")
age_label.pack()
age_entry = tk.Entry(window)
age_entry.pack()

# Create gender input
gender_label = tk.Label(window, text="Gender:")
gender_label.pack()
gender_var = tk.StringVar()
gender_var.set("Male")
gender_male = tk.Radiobutton(window, text="Male", variable=gender_var, value="Male")
gender_male.pack()
gender_female = tk.Radiobutton(window, text="Female", variable=gender_var, value="Female")
gender_female.pack()

# Create smoking input
smoking_label = tk.Label(window, text="Do you smoke?")
smoking_label.pack()
smoking_var = tk.StringVar()
smoking_var.set("No")
smoking_no = tk.Radiobutton(window, text="No", variable=smoking_var, value="No")
smoking_no.pack()
smoking_yes = tk.Radiobutton(window, text="Yes", variable=smoking_var, value="Yes")
smoking_yes.pack()

# Create diet input
```

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Python Code

```
# Create diet input
diet_label = tk.Label(window, text="Do you take healthy diet?")
diet_label.pack()
diet_var = tk.StringVar()
diet_var.set("Good")
diet_good = tk.Radiobutton(window, text="Good", variable=diet_var, value="Good")
diet_good.pack()
diet_poor = tk.Radiobutton(window, text="Poor", variable=diet_var, value="Poor")
diet_poor.pack()

# Create exercise input
exercise_label = tk.Label(window, text="Do you exercise regularly?")
exercise_label.pack()
exercise_var = tk.StringVar()
exercise_var.set("Yes")
exercise_yes = tk.Radiobutton(window, text="Yes", variable=exercise_var, value="Yes")
exercise_yes.pack()
exercise_no = tk.Radiobutton(window, text="No", variable=exercise_var, value="No")
exercise_no.pack()

# Create family history input
family_label = tk.Label(window, text="Do you have a family history of cancer?")
family_label.pack()
family_var = tk.StringVar()
family_var.set("No")
family_no = tk.Radiobutton(window, text="No", variable=family_var, value="No")
family_no.pack()
family_yes = tk.Radiobutton(window, text="Yes", variable=family_var, value="Yes")
family_yes.pack()
#Create alcohol input
alcohol_label = tk.Label(window, text="Do you consume alcohol?")
alcohol_label.pack()
alcohol_var = tk.StringVar()
alcohol_var.set("None")
alcohol_none = tk.Radiobutton(window, text="None", variable=alcohol_var, value="None")
alcohol_none.pack()
alcohol_low = tk.Radiobutton(window, text="Low", variable=alcohol_var, value="Low")
alcohol_low.pack()
alcohol_moderate = tk.Radiobutton(window, text="Moderate", variable=alcohol_var, value="Moderate")
alcohol_moderate.pack()
alcohol_high = tk.Radiobutton(window, text="High", variable=alcohol_var, value="High")
```

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Python Code

```
exercise_no.pack()

# Create family history input
family_label = tk.Label(window, text="Do you have a family history of cancer?")
family_label.pack()
family_var = tk.StringVar()
family_var.set("No")
family_no = tk.Radiobutton(window, text="No", variable=family_var, value="No")
family_no.pack()
family_yes = tk.Radiobutton(window, text="Yes", variable=family_var, value="Yes")
family_yes.pack()
#Create alcohol input
alcohol_label = tk.Label(window, text="Do you consume alcohol?")
alcohol_label.pack()
alcohol_var = tk.StringVar()
alcohol_var.set("None")
alcohol_none = tk.Radiobutton(window, text="None", variable=alcohol_var, value="None")
alcohol_none.pack()
alcohol_low = tk.Radiobutton(window, text="Low", variable=alcohol_var, value="Low")
alcohol_low.pack()
alcohol_moderate = tk.Radiobutton(window, text="Moderate", variable=alcohol_var, value="Moderate")
alcohol_moderate.pack()
alcohol_high = tk.Radiobutton(window, text="High", variable=alcohol_var, value="High")
alcohol_high.pack()

#Create a button to calculate the risk level
calculate_button = tk.Button(window, text="Calculate", command=calculate_risk)
calculate_button.pack()

#Create a label to display the result
result_label = tk.Label(window, text="")
result_label.pack()

window.mainloop()
```

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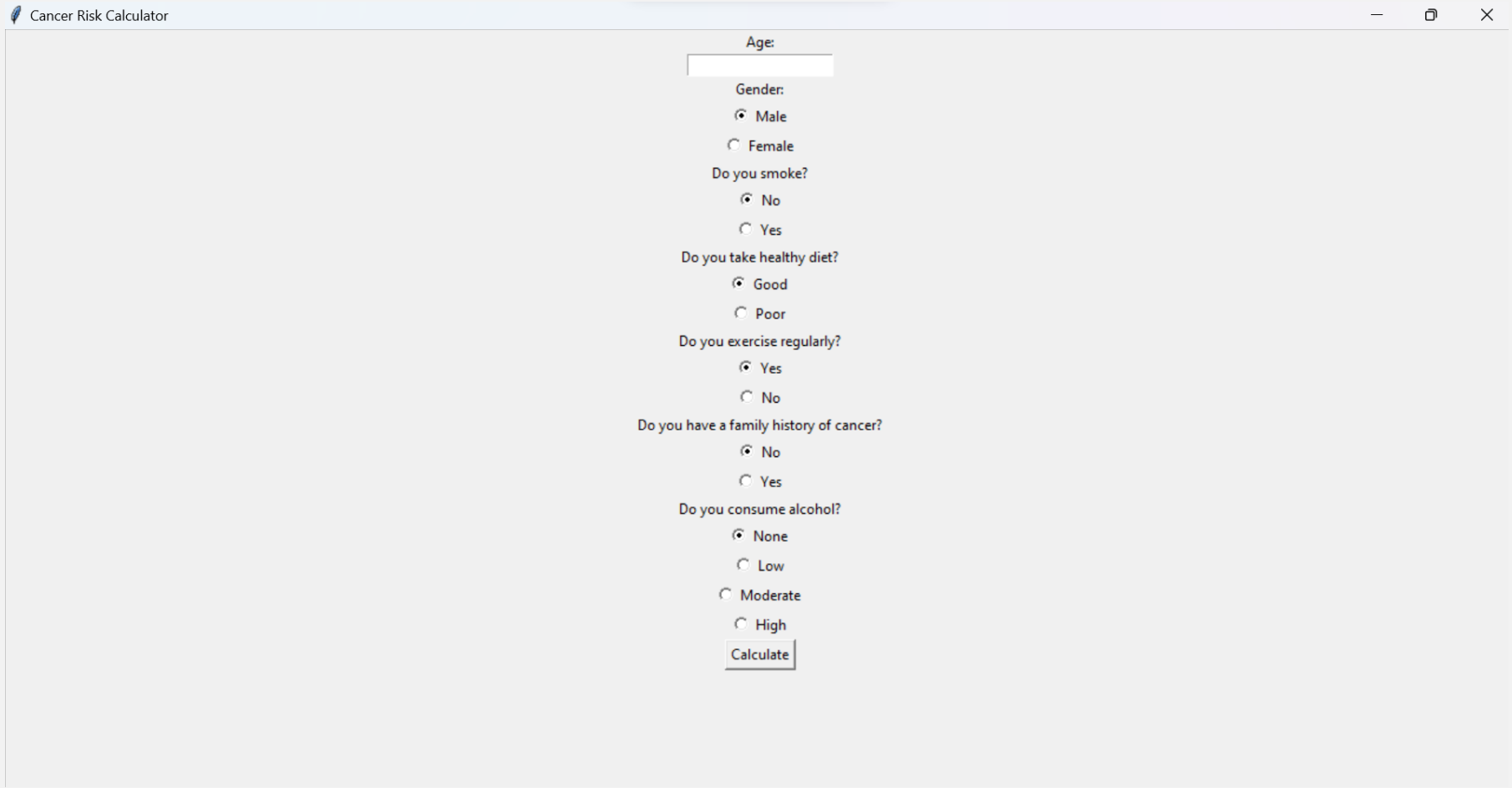
FINAL OUTPUT



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Thank You

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