

---

# Principles of Programming

**CT4029**

**Workbook – Session 4**  
**2022-23**

---

**Zainab Loukil**  
**Qublai Khan Ali Mirza**  
School of Computing and Engineering

**University of Gloucestershire**  
**2022/23**

All rights reserved. No part of this publication may be reproduced, stored or transmitted in any form or by any means, including – but not limited to – photocopy, recording, or any information storage and retrieval system, without the specific prior written permission of University of Gloucestershire.

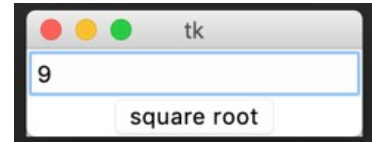
In this session, we covered Graphical User Interface (GUI) development in python using tkinter toolkit, which is a built-in python toolkit. We also covered event driven programming, which enables a program to respond in a certain manner when a user defined event occurs. The exercises below will help you practice the concepts covered today.



### Section A

#### 1. Question 1:

Write a program that creates a window similar to the one in slide 35, which takes an integer as an input from the user and when the button is pressed it prints the square root of a number in the console.



#### 2. Question 2:

Write a program that creates three different radio buttons in a window along with an integer entry from user. The radio button should have the following options:

1. Calculate square (e.g.  $3^2 = 9$ )
2. Calculate cube (e.g.  $3^3 = 27$ )
3. Calculate factorial (e.g.  $6! = 6*5*4*3*2*1$ )

Once user enters an integer, each radio button should print the relevant result in the console.

#### 3. Question 3:

Write a program to create a simple GUI calculator with basic arithmetic operations.

#### 4. Question 4:

write a program, which uses sliders discussed in slide 45 and create a Miles to KM conversion tool. The program should have a GUI interface, which takes value in miles and by using slider convert it in KM. The value of KM should be displayed on the interface as well.