Project: GUI, Event Handling – TypingTutor Project

Typing Tutor: Typing is a Crucial Skill in the Computer Age

Typing quickly and correctly is an essential skill for working effectively with computers and the internet. Your task is to design and build a GUI application that can help users to learn to "touch type", i.e. to type correctly without looking at the keyboard.

Before you start - **research** typing tutors online – try one out, e.g. https://www.speedtypingonline.com/typing-tutor

Figure 1: Speed Typing online (https://www.speedtypingonline.com/typing-tutor)

Task 1: Your application should display a **virtual keyboard** (Figure 2) and should allow the user to watch what he or she is typing on the screen without looking at the actual keyboard.

Use JButtons to represent the keys. As the user presses each key, the application highlights the corresponding JButton on the GUI and adds the character to a JTextArea that shows what the user has typed so far.
NB: Your JTextArea should NOT be editable.

Hint: To highlight a JButton, use its setBackground() method to change its background colour. When the key is released, reset its original background colour. You can obtain the JButtons original background colour with the getBackground() method before you change its colour.

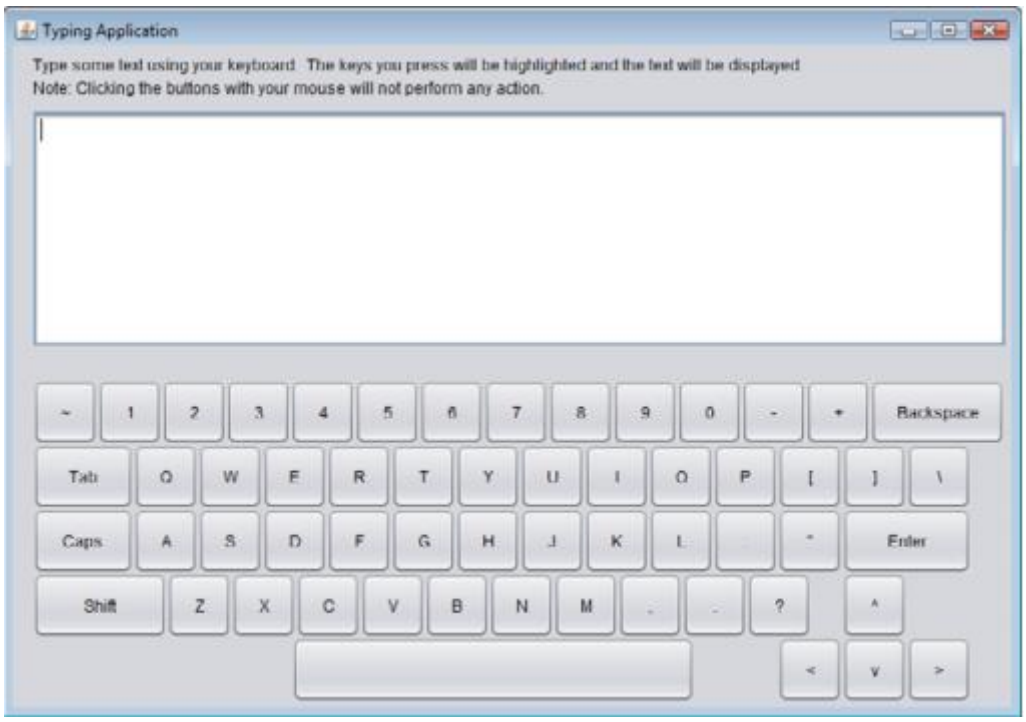

Figure 2: Typing Tutor

You can test your program by typing a pangram – a phrase that contains every letter of the alphabet at least once – such as "The quick brown fox jumped over the lazy dog". You can research other pangrams on the web.

Task 2: You should monitor the user's accuracy. Ask the user to type specific phrases that you have pre-stored in your program and that you display on the screen above the virtual keyboard. You can keep track of how many keystrokes the user types correctly and how many are typed incorrectly. You should also keep track of what keys the user is having difficulty with and display a report showing those keys.

Task 3: You should provide a login, i.e. users should be able to login and continue from their last pangram/lesson.
You will need to have a User class. User Details can initially be stored in an ArrayList but the ArrayList should be written to a file.

Additional Feature:
20% of the marks available are for an appropriate additional feature(s) not specified above. For example, allow the user to follow a lesson plan based on different levels. Or provide a Leaderboard that displays the users name, position (on the Leaderboard) and score. How will you calculate their score?
Score could be calculated on the number of lessons completed and the accuracy.

You must document your additional feature in a Word Document and upload with project folder, i.e. write a short description of the additional feature you have provided.

Marking Scheme:

Assignment Weighting	**30% of final module mark**
Topic	**% mark**
GUI (Task 1)	20
Basic Event handling – correctly displays pangram as typed (Task 1)	25
Monitor Users Accuracy (Task 2)	20
Login (Task 3)	15
Additional Feature (document)	20
Total	**100**

Assignment Weighting: 30% of final module mark

Deliverables:

Deliverable 1: Upload your compressed project folder - **work done to date (Monday 23/3/20 5pm)**
Folder should include any UML diagrams, screen design (take a photo if done in hardcopy) and algorithms you have done.
You can submit hard copy at customer acceptance testing scheduled for 1/4/20 and 2/4/20.

Deliverable 2: Compressed Project Folder named **TypingTutor** uploaded to Moodle.
Additional Feature Detail (short description in word doc) uploaded with project folder (put the Word doc in the root folder)

Deadline: **Wednesday 1/4/20 9am**

Should you fail to upload your work to Moodle before a deadline expires then your mark for the assignment will be subject to a penalty:

Penalties Scale.

Days Late	***Multiply mark by***
1-2	0.7
3-4	0.5
5-7	0.3

Note: You should backup your work regularly as you are developing.

NB: Project will be tested in class 1/4/20 and 2/4/20.
Students who do NOT attend customer testing will be awarded 0 for the assignment.

Issue Date: Tuesday 10/3/20