UNIVERSITY COMPUTER SCIENCE • EXERCISE SHEET

12.3 HCI and accessibility

Name: _____ Class: _____ Date: _____ **Total: 24 marks**

KEY WORDS states • transitions

Objective

Reason about interface states and measure accessibility.

1 Key knowledge and worked examples

■ **The flow**

Five states: browsing, detail, confirm, done, error. Every reachable state needs a visible exit ✓.

■ **Worked example: the numbers**

Body text 7:1 passes; grey disabled 2.9:1 fails; the replacement 4.6:1 with an underline passes ✓.

2 Practice

2.1 From which state is error reachable, and where does it return? [3]

2.2 State the WCAG text-contrast threshold. [3]

2.3 Why is placeholder-as-label a defect? [3]

3 Exam-style questions

3.1 The team adds a renewal screen with states: detail, renew confirm, renewed, error.

List the transitions needed so every state has an exit. State what the error state must preserve and offer. Give the keyboard path in order (which keys, which controls). State the focus requirement on each control. [8]

3.2 An audit finds: body 7:1, secondary text 3.8:1, disabled button 2.9:1, focus ring invisible on the confirm button.

Classify each against WCAG (pass/fail, and the threshold). Give the repair for each failure. State the general principle the audit illustrates. [7]

Solutions

2.1

- From confirm; returns to detail with the input kept ✓.

2.2

- At least 4.5:1 for body text (AA) ✓.

2.3

- It disappears on input – no permanent label; screen readers may skip it ✓.

3.1

- Transitions: detail → renew confirm; renew confirm → renewed; renew confirm → error; error → detail; renewed → detail ✓.
- Error preserves the member's form input and offers retry and back ✓.
- Keyboard path: tab through record fields in visual order, tab to the renew button, enter to confirm, enter on the confirmation ✓.
- Focus: visible on every control, in visual order, and the confirm state announces the new due date ✓.

3.2

- Body 7:1: passes (threshold 4.5:1) ✓.
- Secondary 3.8:1: fails for body-size text – repair to $\geq$ 4.5:1 (darker ink or larger size rule) ✓.
- Disabled 2.9:1: fails – repair to 4.6:1 with an underline or icon affordance (as the course did) ✓.
- Invisible focus: fails operability – repair with a visible focus ring on every control ✓.
- Principle: accessibility is measurable – thresholds, keyboard paths, focus – measure them like performance ✓. ()

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