Mobile App UI/UX Design Concept

1. Core Principles

- **Clarity & Simplicity:** Easy-to-understand navigation, clear labels, minimal clutter.
- **Efficiency:** Common actions (starting a quiz, solving a problem) should be quick and require minimal taps.
- **Consistency:** Uniform design language (colors, fonts, icons, button styles) throughout the app.
- **Feedback:** Clear visual cues for loading, success, errors, and progress.
- **Mobile-First:** Optimized layouts for vertical scrolling, touch targets, and typical mobile usage patterns.
- **Engaging Aesthetics:** Modern, clean look. Use of whitespace. Consider subtle incorporation of King University's branding (e.g., primary color) if desired, otherwise use a professional and academic palette.

2. Navigation

- **Primary:** A **Bottom Navigation Bar** with 3-5 key destinations. Suggested items:
  - **Home:** Dashboard/Overview.
  - **Hubs:** Access to Course Hubs.
  - **Solve:** Quick access to "Help Me Solve".
  - **Quizzes (Optional):** Direct access to Topic Quiz Library / Quiz History.
  - **Profile:** Settings and user information.
- **Secondary Actions:** A **Floating Action Button (FAB)** could be used for the most frequent action, like "New Quiz" or "Snap Problem," depending on primary user behavior.

3. Key Screen Designs

A. Home / Dashboard
- **Layout:** Card-based, scrollable vertically.
- **Greeting:** Prominent "Hello, [Student Name]!" at the top.
- **Quick Actions:** Large buttons or visually distinct cards for:
  - "Generate Custom Quiz"
  - "Help Me Solve a Problem"
  - "Browse Topic Quizzes"
- **Recent Activity:** A section with horizontally scrollable cards or a vertical list showing:
  - Recently accessed Course Hubs.
  - Recent quizzes taken (with score).
  - Recently bookmarked problems.
- **Search Bar (Optional, Top):** Global search across Course Hubs, documents, or bookmarked items.
- **Visuals:** Clean background, clear typography, use of icons for actions.

B. Course Hubs (List View)
- **Access:** Via "Hubs" tab on the Bottom Nav.
- **Layout:** Vertical list of cards.
- **Card Design:** Each card represents a course. Includes:
  - Course Title (e.g., "HIST 201 - World History")
  - Course Code
  - Maybe a subtle icon or color bar unique to the course.
  - Indicator for number of documents or recent activity.
- **Action:** A clear "+" button (top right or FAB) to "Add New Course."
- **Interaction:** Tapping a course card navigates to the specific Course Hub Detail view.

C. Course Hub (Detail View)
- **Header:** Course Title prominently displayed. Maybe options icon (three dots) for editing/deleting the hub.
- **Navigation:** Tabs below the header for organization:
  - **Files:** List of uploaded documents.
  - **Topic Quizzes:** AI-generated quizzes for this course.
  - **History:** Past manually generated quizzes for this course.
- **Files Tab:**
  - **List:** Vertically scrollable list of documents (PDF, DOCX, PPTX, IMG icons). Show file name, date uploaded.
  - **Actions:**
    - "+" Button to "Upload New File(s)".
    - Checkboxes next to each file for multi-select.
    - A persistent button (bottom or top) appears when files are selected: "Generate Quiz from Selected ([Number])".
- **Topic Quizzes Tab:**
  - **List:** Cards representing available AI-generated quizzes based on identified topics.
  - **Card Content:** Topic Name (e.g., "Quiz: Causes of WWI"), maybe number of questions.
  - **Interaction:** Tap card to immediately start that Topic Quiz.
- **History Tab:**
  - **List:** Chronological list of quizzes previously generated manually for this course.
  - **Content:** Date taken, Score (e.g., 8/10), link to review answers.

D. Quiz Generation Setup
- **Access:** Triggered after selecting files in a Course Hub, or potentially via a global "New Quiz" button.
- **Layout:** A clean, step-by-step form or clearly sectioned page.
- **Configuration Sections:**
  - **Source:** Indicate selected files (if coming from Hub).
  - **Settings:**
    - Number of Questions: Slider or Stepper input.
    - Question Types: Chip group or Checkboxes (MCQ, T/F).

- ■ Difficulty: Segmented Control (Easy, Medium, Hard).
- ■ Feedback Mode: Segmented Control (Instant Feedback, Review After).
  - ○ **Lecturer Style (Optional Section):**
    - ■ Toggle: "Adapt to Lecturer Style?"
    - ■ If toggled ON: Button to "Upload Sample Questions" (if none exist for this course) or indicator that samples are already uploaded.
  - ○ **Advanced (Optional Collapsible Section):**
    - ■ "Add Custom Prompt" text input field.
    - ■ Button: "Generate Prompt with AI Helper".
- ● **Action:** Prominent, fixed button at the bottom: "Generate & Start Quiz".

E. Quiz Taking Interface

- ● **Header:** Quiz title/topic, Progress indicator (e.g., "Question 3/10" or progress bar). Exit/Pause button.
- ● **Question Display:** Large, readable text for the question. Images if applicable.
- ● **Answer Input:**
  - ○ MCQ: Clearly defined radio buttons or tappable list items.
  - ○ T/F: Distinct "True" / "False" buttons.
- ● **Interaction (Instant Feedback Mode):**
  - ○ User selects answer -> Taps "Confirm" or "Check Answer".
  - ○ UI updates immediately: highlights correct/incorrect choice, shows explanation below.
  - ○ "Next Question" button appears.
- ● **Interaction (Overall Feedback Mode):**
  - ○ User selects answer -> Taps "Next Question".
  - ○ At the end: "Submit Quiz" button.
- ● **Review Screen (Overall Mode / History):**
  - ○ Score Summary at the top (e.g., "You scored 8/10!").
  - ○ Scrollable list of all questions.
  - ○ Each item shows: Question text (truncated initially?), Correct/Incorrect indicator, User's answer vs Correct answer.
  - ○ Tap to expand and view the full question and detailed AI explanation.

F. Help Me Solve (Input)

- ● **Access:** Via Bottom Nav "Solve" tab or FAB.
- ● **Layout:** Camera-centric view.
- ● **Top Area:** Optional dropdown/chips to select subject ("Math," "Physics," etc.) to provide context. Clear instructions: "Position the question in the frame."
- ● **Center:** Live camera viewfinder. Overlay guides/frame optional.
- ● **Bottom Area:**
  - ○ Large Shutter button.
  - ○ Button to switch camera (front/back).
  - ○ Button to upload image from gallery.
- ● **Post-Capture:** Show image preview. Buttons: "Retake," "Use Photo." If "Use Photo" is tapped -> "Solve Problem" button + loading indicator.

G. Help Me Solve (Solution View)

- **Header:** Small thumbnail of the captured question image for reference.
- **Solution Area:**
  - Scrollable view.
  - Clear title: "Step-by-Step Solution".
  - Use numbered steps, code blocks for formulas (rendered with KaTeX/MathJax), clear explanations.
  - Visually separate steps (lines, background shading).
- **Follow-up Actions (Below Solution):**
  - Section Title: "Need more help?"
  - Button: "Ask Follow-up Question".
  - Button: "Try a Similar Problem".
  - Button/Icon: "Bookmark this Solution".

H. Bookmarked Problems

- **Access:** Via Profile screen or dedicated nav item.
- **Layout:** Vertical list of bookmarked items.
- **Card Content:** Small thumbnail of the question, Subject/Topic label, Date saved.
- **Interaction:** Tap to view the full saved question and its step-by-step solution.

I. Profile & Settings

- **Layout:** Standard settings list view.
- **Sections:**
  - User Info (Name, Email - potentially editable).
  - App Settings (Notifications toggle, Appearance: Light/Dark/System Theme selector).
  - Link to "My Bookmarks".
  - Support/Feedback link.
  - Logout button.

4. Visual Design Language

- **Color Palette:** Primary color (e.g., King University blue/gold, or a neutral academic blue/teal), secondary accent color (for buttons, highlights), neutral grays for text and backgrounds, distinct colors for success (green) and error (red) states. Ensure high contrast ratios for accessibility.
- **Typography:** Clean sans-serif font (e.g., Inter, Roboto). Clear hierarchy (H1, H2, Body, Caption sizes). Legible font sizes.
- **Iconography:** Consistent icon set (e.g., Material Symbols, Feather Icons). Use icons intuitively for navigation and actions.
- **Spacing:** Generous use of whitespace for a clean, uncluttered look. Consistent padding and margins.
- **Imagery:** Minimalist. Use icons effectively. Avoid distracting background images unless relevant to branding.
- **Interactions:** Smooth transitions between screens. Subtle animations on button taps or loading states. Use standard platform conventions (iOS/Android) where appropriate.

This design concept provides a visual and interactive framework for the mobile app, ensuring all features are accessible and the user experience is smooth and efficient for students.