QuizBuilder

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Abstract

Project simplifies the creation of educational questions from selected PDFs. Users can choose a PDF, and our tool automatically generates fill-in-the-blank, true or false, and question-and-answer questions, saving time and enhancing the learning experience for students and educators.

Problem Statement

"Insufficient Availability of Educational Practice Questions"

Description: In the realm of education, one of the key challenges faced by students and educators is the inadequate availability of practice questions and problems to support effective learning. This problem encompasses various educational levels, from primary to higher education, and can impact a wide range of subjects and disciplines.

Challenges:

- Limited Learning Opportunities: Inadequate access to practice questions hinders students' ability to reinforce their understanding of concepts and improve their problem-solving skills.
- Skill Development: Practicing questions is essential for skill development and academic success. When students lack a variety of questions to work on, their proficiency and confidence may suffer.
- Diverse Learning Needs: Students have diverse learning needs and paces. Some may need more questions to grasp a concept, while others require different types of questions to challenge themselves.
- Teacher Workload: Educators and teachers often spend a significant amount of time creating or searching for quality practice questions to provide to their students, taking time away from other teaching activities.
- Impact: The shortage of practice questions can result in reduced educational effectiveness, lower student performance, and increased stress and frustration among students and educators.

Solution: Developing a solution that addresses this problem might involve creating a platform or tool for generating, curating, or sharing a diverse range of practice questions across subjects and grade levels. This platform could serve both students and educators, offering a comprehensive collection of questions and customizable features to cater to individual learning needs.

By addressing this problem, students and educators can access a wider variety of practice questions, leading to more effective learning, improved academic outcomes, and reduced teaching workload.

Target Specifications

QuizBuilder, offers a unique and empowering solution for both students and teachers in the realm of education.

- Customized Learning: QuizBuilder allows students and teachers to create questions and answers based on their own choice of notes or PDFs.
  This customization empowers learners to tailor their learning experiences to match their individual preferences and needs.

- Affordability: Unlike some education apps that charge high fees for courses and content, QuizBuilder utilizes existing materials, making it an affordable and accessible resource for students.

- Content Relevance: By generating questions from user-provided notes or PDFs, QuizBuilder ensures that the content is up-to-date and directly relevant to the materials students are studying.

- Active Learning: Learners actively engage with the content by creating questions and answers. This active learning approach enhances comprehension, retention, and application of knowledge.

- Flexibility: QuizBuilder offers flexibility in question types, allowing users to choose between multiple formats, including Question and Answer or True or False, accommodating various learning preferences.

- Enhanced Focus and Practice: Users can focus on areas they find most challenging or relevant, thereby optimizing their learning and practice efforts.

- Empowerment and Enjoyment: The ability to generate personalized questions not only enhances the learning experience but also makes it enjoyable and fulfilling.

Success-Oriented Learning: The self-directed approach encourages students to take ownership of their education, fostering a mindset that supports continuous learning and achievement.
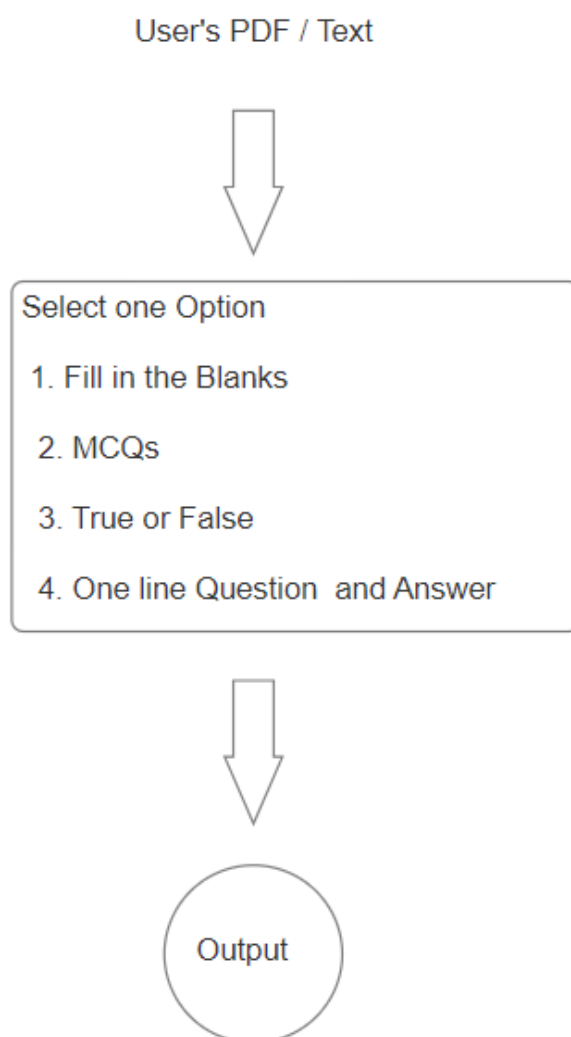
QuizBuilder's approach aligns with contemporary educational principles that emphasize personalized learning, active engagement, and adaptability. By providing an accessible and affordable way for students to customize their learning experience, your project contributes to the enhancement of education, enabling learners to excel in their studies.
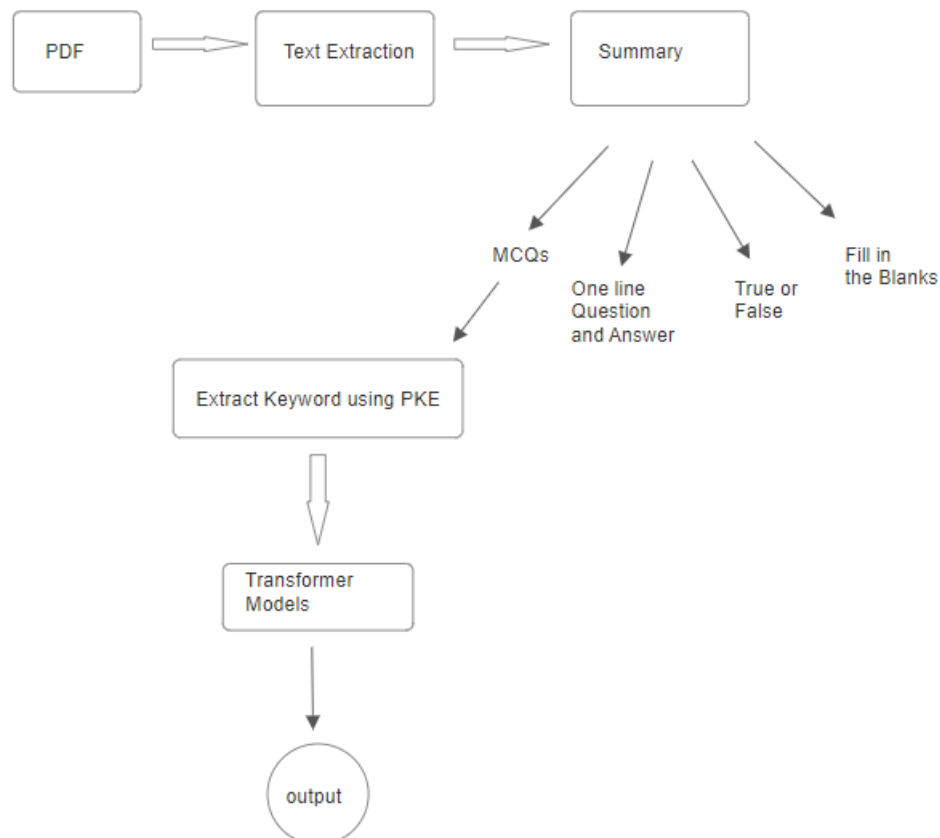
Business Model

- API Access: A premium API for integration with other educational apps and services.
- Advertising and Sponsorships: Collaborate with relevant educational companies for sponsorships and partnerships to promote their products or services.
- Pay-Per-Use Model: Allow users to generate a limited number of questions for free. Implement a pay-per-use model where users can purchase question generation credits or tokens. Users pay only for the number of questions they generate
- Feedback: Regularly gather feedback from your user base to refine and enhance QuizBuilder.

Schematic Diagram

Overview of QuizBuilder Project

User's PDF / Text

Select one Option

1. Fill in the Blanks

2. MCQs

3. True or False

4. One line Question and Answer

Output

QuizBuilder uses transformer models like T5 and BERT, as well as sense2vec:

Viability:

- The QuizBuilder addresses a significant issue in education – the shortage of practice questions. As long as educational systems exist, the demand for effective learning tools will persist. The trend towards personalized and active learning aligns well with QuizBuilder's approach, making it a potentially sought-after solution.

- The use of advanced models like T5 and BERT demonstrates a commitment to leveraging cutting-edge technology. Regular updates to incorporate newer models will be essential for staying competitive.

- The ability to generate questions from user-provided materials sets QuizBuilder apart. Continuous innovation will be crucial to maintain a unique value proposition.
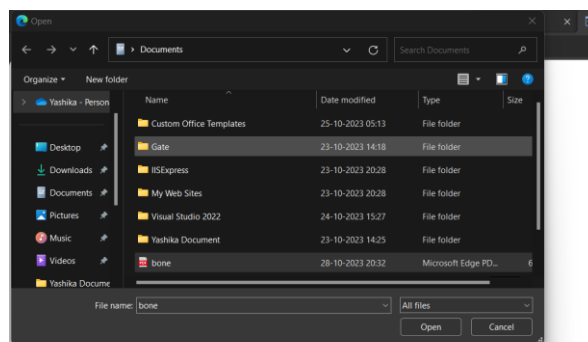
- Collaboration Opportunities: Collaborating with educational companies can enhance visibility and credibility, provided partnerships align with QuizBuilder's mission.

- If QuizBuilder effectively addresses the challenges outlined, it can lead to positive educational outcomes, such as improved academic performance and reduced stress for both students and educators.

Step 1

Upload a PDF File

Choose File | No file chosen   Upload

Step 2

Step 3

Select an Option

- ⦿ Fill in the Blanks
- ◯ MCQs
- ◯ True or False
- ◯ One Line Question and Answer

Submit

Fill in the Blanks Question Sets:

Fill in the blanks for these sentences with matching words at the top

heart , development , time , stress , medicine , stability , disease , epiphyseal plates , frame , osteoblasts , types , process , bone marrow , blood cells , results , body , layers , animals , collagen

1. The purpose of remodeling is to regulate calcium homeostasis, repair microdamaged bones from everyday _____ , and to shape the skeleton during growth.

2. Cancers of _____ inside the bone can also affect bone tissue, examples including leukemia and multiple myeloma.

3. Osteoclasts are large multinucleate cells responsible for the breakdown of bones by the _____ of bone resorption.

4. Fractures can also occur when a bone is weakened, such as with osteoporosis, or when the bone remodels excessively (such as Paget's _____) or is the site of the growth of cancer.

5. Repeated stress, such as weight -bearing exercise or bone healing, _____ in the bone thickening at the points of maximum stress (Wolff's law).

6. Every day, over 2.5 billion red _____ and platelets, and 50 –100 billion granulocytes are produced in this way.

7. The _____ fibers give bone its tensile strength, and the interspersed crystals of hydroxyapatite give it its compressive strength.

8. Two _____ of bone can be identified microscopically according to the arrangement of collagen: woven and lamellar.

9. The exact composition of the matrix may be subject to change over _____ due to nutrition and biomineralization.

10. The process includes: the _____ of the ossification center, calcification, trabeculae formation and the.

11. _____ are mononucleate bone -forming cells.

12. The largest bone in the _____ is the femur or thigh -bone, and the smallest is the stapes in the middle ear.

13. Flat bones are thin and generally curved, with two parallel _____ of.

14. A bone is a rigid organ that constitutes part of the skeleton in most vertebrate _____ .

15. Bones protect internal organs, such as the skull protecting the brain or the _____ .

16. Short bones provide _____ and support as well as limited motion.

17. development of articular cartilage and the _____ .

18. Bones form the _____ to the body supported, and an attachment point for the skeletal ligaments and tendons.

Question and Answer sets:

One Line Questions

- What are Osteoblasts?
Ans:Osteoblasts are mononucleate bone -forming cells.
- What type of fractures can occur when a bone is weakened?
Ans:Fractures can also occur when a bone is weakened, such as with osteoporosis, or when the bone remodels excessively (such as Paget's disease) or is the site of the growth of cancer.
- What is the proportion of cortical bone that is 80% in the human skeleton?
Ans:The proportion of cortical bone that is 80% in the human skeleton may be much lower in other vertebrates, such as marine mammals and marine turtles.
- It has a higher surface area-to-volume ratio than cortical bone and is less dense?
Ans:It has a higher surface -area-to-volume ratio than cortical bone and is less dense.
- Bone tissue is mineralized tissue of two types, cortical and cancellous bone.
Ans:Bone tissue is mineralized tissue of two types, cortical bone and cancellous bone.
- Osteoporosis is a disease of bone where there is reduced bone mineral density.
Ans:Osteoporosis is a disease of bone where there is reduced bone mineral density.
- What type of long bones are made up of?
Ans:Long bones are made up mostly of compact bone, with lesser amounts of marrow located within the medullary cavity.
- Where is cancellous bone typically found?
Ans:Cancellous bone is typically found at the ends of long bones, near joints, and in the interior of vertebrae.
- What is the name of the type of bone found in the interior of vertebrae?
Ans:Cancellous bone is typically found at the ends of long bones, near joints, and in the interior of vertebrae.
- Bone tissue is mineralized tissue of two types, cortic bone and cancellous bone.
Ans:Bone tissue is mineralized tissue of two types, cortical bone and cancellous bone.
- What is the primary anatomical and functional unit of cancellous bone?
Ans:The primary anatomical and functional unit of cancellous bone is the trabecula.
- Cancers of bone marrow inside the bone can affect bone tissue?
Ans:Cancers of bone marrow inside the bone can also affect bone tissue, examples including leukemia and multiple myeloma.
- What is the name of the process called hematopoiesis?
Ans:Bone marrow produces blood cells in a process called hematopoiesis.
- The cancellous part of bones contain bone marrow?
Ans:The cancellous part of bones contain bone marrow.
- What do irregular bones do not fit into the above categories and are irregular and complicated?
Ans:Irregular bones do not fit into the above categories and are irregular and complicated.
- What type of bone do Long bones make up?
Ans:Long bones are made up mostly of compact bone, with lesser amounts of marrow located within the medullary cavity.
- What is the name of the type of bone that sandwiched a layer of spongy bone?
Ans:compact bone sandwiching a layer of spongy bone.
- What is compact bone sandwiching a layer of spongy bone?
Ans:compact bone sandwiching a layer of spongy bone.
- What do short bones provide stability and support?

Budgets:

- Server Memory: amount of memory required on server depends on the server's capacity and the number of concurrent users.
- User information: database management system
- Server Cost: Cloud hosting costs can vary based on the chosen provider (e.g., AWS, Azure, Google Cloud) and the server configuration (CPU, RAM, storage).
- Security: Investing in security measures, such as firewalls, DDoS protection, and security audits, is crucial and should be factored into the budget.
- Coding: Cost for Algorithms to speed up the process.

Financial Modelling

Subscription includes – Silver and Gold

Financial Equation $y = mx(f)-c$

> Total profit = y
>
> Price of year product = m
>
> Total role as a function of time = x(f)
>
> Total production and maintenance cost = c

Silver Subscription includes simple Model whereas Gold includes open AI tools.

For SILVER Subscription Cost:

> Monthly = Rs 100
>
> Yearly = Rs 1200
>
> Total role as a function of time = 2
>
> Total production and maintenance cost = 500
>
> Formula for financial Equation $y=mx(f)-c$,
>
> $$y = 1200*2-500 = Rs. 1900$$

For GOLD Subscription Cost:

> Monthly = Rs 200
>
> Yearly = Rs 7200
>
> Total role as a function of time = 1
>
> Total production and maintenance cost = 500
>
> Formula for financial Equation $y=mx(f)-c$, $y = 7200*1-500 = Rs. 6700$

Github Link

https://github.com/yashikart/QuizBuilder