Quiz Model based on Categories with Improvement Suggestions

INT-404 PROJECT REPORT

by

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DETAIL ABOUT DEVELOPMENT OF PROJECT

Each one of us has developed one JSON file with data inside it. The data inside are questions and answers and the source provided to increase the quiz taker's knowledge about a topic.
Also, we have built total 7 functions

Function builders	**Role of function**
Avinash Kumar:	ask_one_function() , it displays the question asked and asks the user for their choice of answer. score_one_result() , verifies if the answer is absolutely correct or not by matching the answer from the knowledge base it also displays if the response was right or wrong.
Rishitha Singireddy:	test() having one parameter question, this is like a small interface about the program on how the quiz works giving all the general instructions about the quiz and shows the result instantly.
Akash Raju:	load_question() having one parameter filename, it loads the questions from the JSON file into a Python dictionary and returns it.
Dilshad Ahmad:	user_begin_prompt() having no parameter, it asks the user if he's ready to test his knowledge if he inputs Yes then the program takes him to asking questions and matching the answers from the already store knowledge that the program has.

All of us developed the play_quiz() to make it better
play_quiz() having no parameter this is also like an interface displaying the user on what things he can take the quiz about, we check if the users input matches with our input or not so that we can fetch the questions from the knowledge base otherwise we ask him to re-enter

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ABSTRACT

A simple quiz model built using Python. This project aims to take a quiz of a user with category-based questions and suggest improvement areas and strategies to score good in future. We first initialize a list and this list has to in sync with the JSON filename and the Menu prompt inside test() method then we define 7 functions, the first function being ask_one_function having the parameter question, it displays the question asked and asks the user for their choice of answer from a, b, c, d, if it is invalid, it asks again to enter. Second function is score_one_result having two parameter key and meta. This function verifies if the answer is absolutely correct or not by matching the answer from the knowledge base it also displays if the response was right or wrong. Third function is test having one parameter question, this is like a small interface about the program on how the quiz works giving all the general instructions about the quiz and also shows the result instantly. Fourth function is load_question having one parameter filename, it loads the questions from the JSON file into a Python dictionary and returns it. Fifth function is play_quiz having no parameter this is also like an interface displaying the user on what things he can take the quiz about, we check if the users input matches with our input or not so that we can fetch the questions from the knowledge base otherwise we ask him to re-enter. The sixth function is user_begin_prompt having no parameter, it asks the user if he's ready to test his knowledge if he inputs Yes then the program takes him to asking questions and matching the answers from the already store knowledge that the program has. The last function is execute having no parameter, it calls all of the above functions directly or indirectly to make the quiz interactive and fun.

At last when the quiz is over, the interface shows the result of user and also about his weakness that in which topic he lacks in and also show him the exact facts and figures that was stored in the knowledge base

Introduction

This is project overview of developing Quiz Model using AI. There are a lot of Artificial Intelligence (AI) techniques to determine. After comparisons were made between those techniques, system Knowledge Base is chosen. System is presented with JSON files to make it accessible for dataset. The result of this designed model to take quiz effectively. Python language is used as the programming language.

A knowledge-based system (KBS) is a form of artificial intelligence (AI) that aims to capture the knowledge of human experts to support decision-making. Examples of knowledge-based systems include expert systems, which are so called because of their reliance on human expertise.

The typical architecture of a knowledge-based system, which informs its problem-solving method, includes a knowledge base and an inference engine. The knowledge base contains a collection of information in each field -- medical diagnosis, for example. The inference engine deduces insights from the information housed in the knowledge base. Knowledge-based systems also include an interface through which users query the system and interact with it.

A knowledge-based system may vary with respect to its problem-solving method or approach. Some systems encode expert knowledge as rules and are therefore referred to as rule-based systems. Another approach, case-based reasoning, substitutes cases for rules. Cases are essentially solutions to existing problems that a case-based system will attempt to apply to a new problem.

Objectives of Project

Objective of the project is to create a quiz game which works on knowledge base so it can remember the state and also make use of the knowledge available to it. A simple quiz model built using Python. This project aims to take a quiz of a user with category-based questions and suggest improvement areas and strategies to score good in future.

An intelligent agent needs knowledge about the real world for taking decisions and reasoning to act efficiently which is given in form of JSON files.

Knowledge-base is required for updating knowledge for an agent to learn with experiences and take action as per the knowledge.

Knowledge-based agent in the program have the capability of maintaining an internal state of knowledge, reason over that knowledge, update their knowledge after observations and take actions. These agents can represent the world with some formal representation and act intelligently.

At last when the quiz is over, the interface shows the result of user and also about his weakness that in which topic he lacks in and also show him the exact facts and figures that was stored in the knowledge base.

METHODOLOGY SELECTED:

A simple quiz model built using Python
Start the game:

The game will run in the terminal. Answer the first question - whether you want to start the game. Select
(a) Start the Quiz
(b) Exit.

Pick your interest
    (a) Science (b) History of India (c) Commerce (d)Technology
    (e)World GK
    You'll be presented with domain specific questions.

Read the general instructions prompt for point system information and how to answer the questions.
Each question carries 2 points and there is a negative marking of -1 per question.

Answer each question. At the end of the quiz, you will be provided with the feedback of your responses.
If incorrect, the correct answer will be displayed. You will also be provided a little insight into the question and your final score will be revealed to you.

The game will exit on its own. To play again, follow instructions from step 2.

CODE & RESULT

```python
import json
import time

TOPICS_LIST = ['science', 'history', 'commerce', 'technology', 'worldgk']
# this list has to in sync with the JSON filename and the Menu prompt inside test()
method

def ask_one_question(question):
    print("\n" + question)
    choice = input("Enter Your Choice [a/b/c/d]: ")
    while(True):
        if choice.lower() in ['a', 'b', 'c', 'd']:
            return choice
        else:
            print("Invalid choice. Enter again")
            choice = input("Enter Choice [a/b/c/d]: ")

def score_one_result(key, meta):
    actual = meta["answer"]
    if meta["user_response"].lower() == actual.lower():
        print("Q.{0} Absolutely Correct!\n".format(key))
        return 2
    else:
        print("Q.{0} Incorrect!".format(key))
        print("Right Answer is ({0})".format(actual))
        print ("Learn more : " + meta["more_info"] + "\n")
        return -1


def test(questions):
    score = 0
    print("General Instructions:\n1. Please enter only the choice letter corresponding to
the correct answer.\n2. Each question carries 2 points\n3. Wrong answer leads to -1
marks per question\nQuiz will start momentarily. Good Luck!\n")
    time.sleep(10)
    for key, meta in questions.items():
        questions[key]["user_response"] = ask_one_question(meta["question"])
    print("\n***************** RESULT *******************\n")
    for key, meta in questions.items():
        score += score_one_result(key, meta)
    print("Your Score:", score, "/", (2 * len(questions)))

def load_question(filename):
    """
    loads the questions from the JSON file into a Python dictionary and returns it
    """
```

```python
    questions = None
    with open(filename, "r") as read_file:
        questions = json.load(read_file)
    return (questions)


def play_quiz():
    flag = False
    try:
        choice = int(input("Welcome to Today's Quiz!\nChoose your domain of
interest:\n(1). Science\n(2). History of India\n(3). Commerce\n(4). Technology\n(5).
World Gk\nEnter Your Choice [1/2/3/4/5]: "))
        if choice > len(TOPICS_LIST) or choice < 1:
            print("Invalid Choice. Enter Again")
            flag = True # raising flag
    except ValueError as e:
        print("Invalid Choice. Enter Again")
        flag = True # raising a flag

    if not flag:
        questions = load_question('topics/'+TOPICS_LIST[choice-1]+'.json')
        test(questions)
    else:
        play_quiz() # replay if flag was raised

def user_begin_prompt():
    print("Wanna test your GK?\nA. Yes\nB. No")
    play = input()
    if play.lower() == 'a' or play.lower() ==  'y':
        play_quiz()
    elif play.lower() == 'b':
        print("Hope you come back soon!")
    else:
        print("Hmm. I didn't quite understand that.\nPress A to play, or B to quit.")
        user_begin_prompt()

def execute():
    user_begin_prompt()

if __name__ == '__main__':
    execute()
```

```
=========== RESTART: C:\Users\DELL\Desktop\Quiz-Model\question.py ===========
Wanna test your GK?
A. Yes
B. No
A
Welcome to Today's Quiz!
Choose your domain of interest:
(1). Science
(2). History of India
(3). Commerce
(4). Technology
(5). World Gk
Enter Your Choice [1/2/3/4/5]: 1
General Instructions:
1. Please enter only the choice letter corresponding to the correct answer.
2. Each question carries 2 points
3. Wrong answer leads to -1 marks per question
Quiz will start momentarily. Good Luck!


What is another name for Vitamin K?
(a) Nicotinic acid
(b) Riboflavin
(c) Thiamine
(d) 2 Methyl-1, 4-naphthoquinone

Enter Your Choice [a/b/c/d]: d

Identify India's first indigenous Satellite Launch Vehicle (SLV):
(a)SLV-1
(b)PSLV
(c)SLV-3
(d)GSLV

Enter Your Choice [a/b/c/d]: c

Which hormone controls blood pressure?
(a) Vasopressin
(b) Oestrogen
(c) Oxytocin
(d) Testosterone
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```
Which hormone controls blood pressure?
(a) Vasopressin
(b) Oestrogen
(c) Oxytocin
(d) Testosterone

Enter Your Choice [a/b/c/d]: a

Who provided the first information regarding the Black Hole?
(a) Copernicus
(b) Herman Bondy
(c) Rutherford
(d) S. Chandrasekhar

Enter Your Choice [a/b/c/d]: d

How do biocides work??
(a) Control the multiplication of insects
(b) Kill the insects
(c) Manage the original form of material
(d) Control the bacteria

Enter Your Choice [a/b/c/d]: a

***************** RESULT *********************

Q.1 Absolutely Correct!

Q.2 Absolutely Correct!

Q.3 Absolutely Correct!

Q.4 Absolutely Correct!

Q.5 Incorrect!
Right Answer is (d)
Learn more : Biocidal products are intended to destroy, render harmless, prevent the action of, or otherwise exert a controlling effect on any harmful organism by chem
ical or biological means.

Your Score: 7 / 10
>>>
```

CONCLUSION

Building a knowledge base is difficult but essential. Any customer nowadays demands and deserves immediate support for software or tool that they are using. That is why having a dynamic, up-to-date, and customer-centric knowledge base reduces customer churn and boosts your ROI in terms of customer success.

Additionally, it helps build a community around your product which helps you increase brand awareness, overall customer satisfaction and the feeling of being included in something bigger.

Ultimately, having a good knowledge base is about empowering your customers and your employees.

All of this can be accelerated and improved using knowledge base software.

FUTURE SCOPE

Since it has already been demonstrated over the past twenty years, Knowledge-based systems confers a range of benefits to organizations. These benefits fall into five broad categories:

1. helps organizations to share valuable insights
2. Reduce numbers by empowering self-serve
3. Reduce operating costs through continuous productivity gains
4. Facilitate access to scarce expertise and knowledge globally
5. Reduce training time for employees

Based on these benefits, knowledge-based system's core attraction for organizations can be summarized as:

"In a time of disruptive innovations across an industry, a firm's competitive advantage depends more than ever on its knowledge: on what it knows, how it uses what it knows, and how fast it can acquire new knowledge."

As large areas of the global trade in goods and services migrate to knowledge-based economies, the increased competition is driving the quest for continuous innovation.

A knowledge base sits at the heart of any innovation effort. When innovation is increasingly the only sustainable competitive advantage, that innovation effort is largely determined by how effective the enterprise is at creating, sharing, managing and utilizing knowledge.