وزاره التعليم العالى

المعهد العالي للحاسبات وتكنولوجيا المعلومات بالشروق

شعبة علوم الحاسب

اسم الطالب: محمد جمال قناوى

الفرقه: الرابعة

سكشن : 1

ايميل : 321213033@sha.edu.eg

Expert System Project (2023/2024)
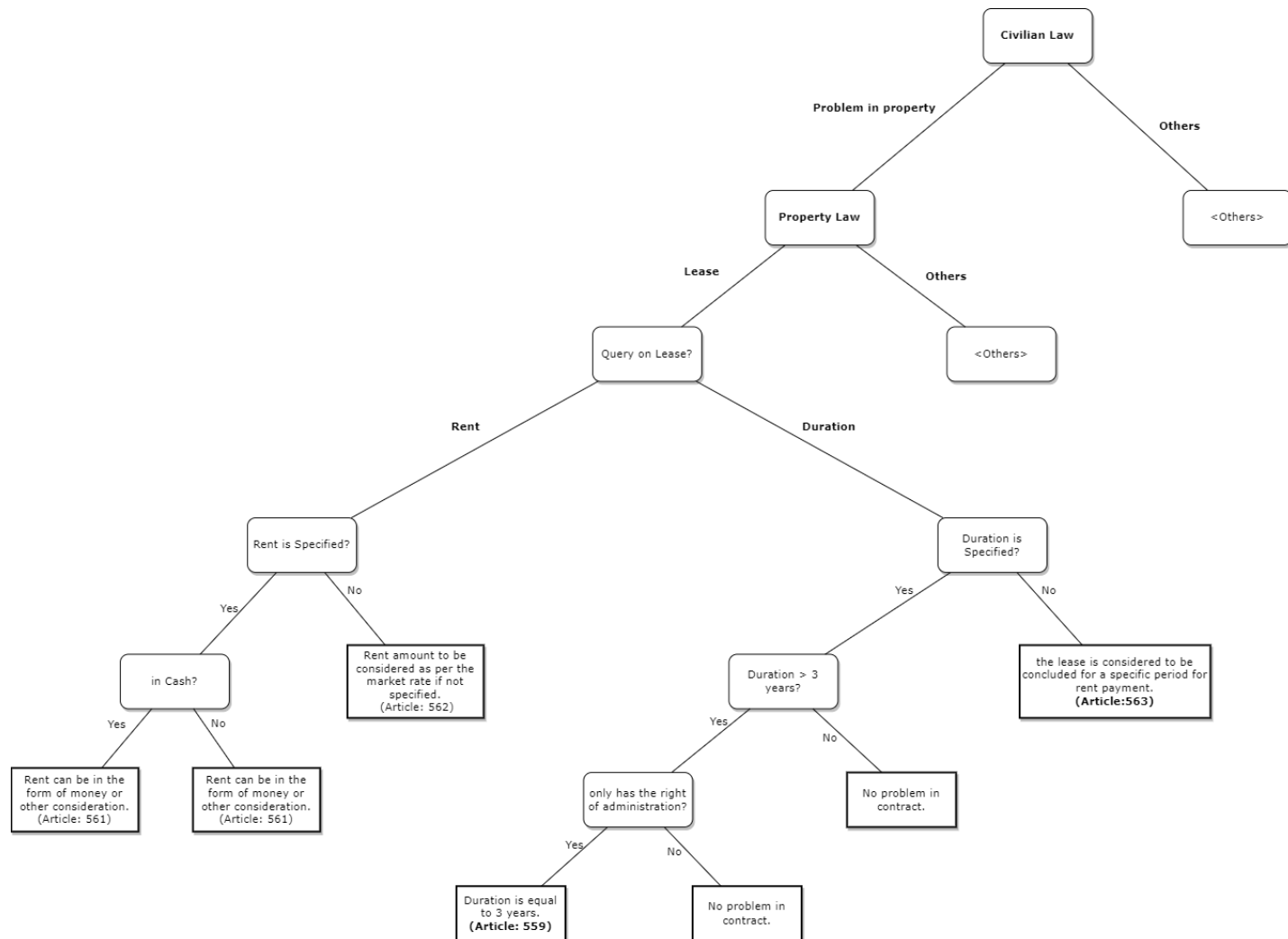
Problem Identification:

The challenge lies in the intricate nature of civil law cases and the necessity for individuals involved in legal disputes to comprehend the legal intricacies, precedents, and case-specific nuances. An expert system can be a valuable asset in assisting individuals as they navigate through legal proceedings by providing relevant legal knowledge, enabling analysis, and delivering personalized guidance suited to their particular legal situation.

Knowledge Acquisition:

the knowledge in the system depends on the Egyptian civil law number (131) released in year 1948.

Knowledge Representation:

Part of the civil law represented as a decision tree.

```
                                           Civilian Law
                              Problem in property          Others
                         Property Law                          <Others>
                   Lease              Others
            Query on Lease?                    <Others>
        Rent              Duration
  Rent is Specified?                    Duration is Specified?
    Yes       No                         Yes              No
  in Cash?    Rent amount to be      Duration > 3    the lease is considered to be
              considered as per the   years?          concluded for a specific period for
              market rate if not                      rent payment.
              specified.            Yes      No        (Article:563)
              (Article: 562)
 Yes     No                    only has the right   No problem in
                               of administration?   contract.
Rent can be in the  Rent can be in the
form of money or    form of money or   Yes      No
other consideration. other consideration.
(Article: 561)      (Article: 561)    Duration is equal   No problem in
                                      to 3 years.         contract.
                                      (Article: 559)
```

Knowledge base:

```
(defrule General-query

    =>

    (printout t "Hello , What can i help you with? (Property/Others)" crlf)

    (bind  ?q-type (read))

    (assert(query-type ?q-type))
)


(defrule Property-query

    (query-type Property)

    =>

    (printout t "What area are you facing a problem in" crlf)

    (printout t "1. Lease-contracts." crlf)

    (printout t "2. Other." crlf)


    (printout t "Choice : " )

    (bind ?property-q (read))

    (printout t "" crlf)


    (if (= ?property-q 1)
        then
        (assert(property-query lease-contracts))
        else
        (assert(property-query other))
    )
)


(defrule Lease-query

    (property-query lease-contracts)
```

```
    =>

    (printout t "What area are you facing a problem in" crlf)

    (printout t "1. Rent issues." crlf)

    (printout t "2. Duration issues." crlf)


    (printout t "Choice : " )

    (bind ?issue (read))

    (printout t "" crlf)


    (if (= ?issue 1)

        then

        (assert(issue rent))

        else

        (assert(issue duration))

    )

)




;Lease-Duration-Rules
(defrule duration-query

    (issue duration)

    =>

    (printout t "Is the duration period specified?" crlf)


    (printout t "1. Yes." crlf)

    (printout t "2. No." crlf)


    (printout t "Choice : " )

    (bind ?duration-specified (read))
```

```
        (printout t "" crlf)


        (if (= ?duration-specified 1)

            then

                (assert(duration-state specified))

            else

                (assert(duration-state unspecified))

        )
)



(defrule duration-specified-rule
        (duration-state specified)

        =>

        (printout t "Is the duration period specified more than 3 years?" crlf)

        (printout t "1. Yes." crlf)

        (printout t "2. No." crlf)


        (printout t "Choice : " )

        (bind ?choice (read))

        (printout t "" crlf)


        (if (= ?choice 1)

            then

            (assert(lease-duration  permission-required))

            else

            (assert(lease-duration  legit))

        )
)
```

```
(defrule legit-duration-rule

    (lease-duration  legit)

    =>

    (printout t "Don't worry, There's no problem in contract." crlf)

    (assert(exit-chat))


)


(defrule permission-rule

    (lease-duration  permission-required)

    =>

    (printout t "Do you have only administration rights?" crlf)

    (printout t "1. Yes." crlf)

    (printout t "2. No." crlf)


    (printout t "Choice : " )

    (bind ?choice (read))

    (printout t "" crlf)


    (if (= ?choice 1)

        then

        (assert(permission unavailable))

        else

        (assert(permission available))

    )
)


(defrule duration-permission-available
    (lease-duration  permission-required)
```

```
    (permission available)

    =>

    (printout t "Don't worry, There's no problem in contract." crlf)

    (assert(exit-chat))



)



(defrule duration-permission-unavailable

    (lease-duration   permission-required)

    (permission unavailable)

    =>

    (printout t "Article 559 : Duration is considered to be 3 Years, as long as
there's no writing that says otherwise. " crlf)

    (assert(exit-chat))



)



(defrule duration-unspecified-rule
    (duration-state unspecified)

    =>

    (printout t "Article 563: If the lease is concluded without agreement on a
duration or for an indefinite duration, the lease shall be considered concluded
for the specified period for rent payment." crlf)

    (assert(exit-chat))
)



;Lease-Rent-Rules
(defrule rent-query

    (issue rent)

    =>
```

```
(printout t "Is the rent value specified?" crlf)


(printout t "1. Yes." crlf)

(printout t "2. No." crlf)

(printout t "3. Yes, But not in cash." crlf)


(printout t "Choice : " )

(bind ?rent-specified (read))

(printout t "" crlf)


(if (= ?rent-specified 1)

    then

        (assert(rent-state specified))

    else

        (if (= ?rent-specified 2)

        then

            (assert(rent-state unspecified))

        else

            (assert(rent-state specified-not-cash))


        )

    )

)


(defrule rent-not-cash
    (rent-state specified-not-cash)

    =>

    (printout t "Don't worry, there's no issue." crlf)

    (printout t "Article 561: Rent may be in cash or in any other form of advance
payment." crlf)
```

```
        (assert(exit-chat))


)



(defrule rent-specified-rule
    (rent-state specified)

    =>

    (printout t "Don't worry, There's no problem in contract." crlf)

    (assert(exit-chat))



)



(defrule rent-unspecified-rule

    (rent-state unspecified)

    =>

    (printout t "Article 562 : Rent amount is to be considered as per the market
rate if not specified. ()" crlf)

    (assert(exit-chat))
)



(defrule exit-rule
    (exit-chat)

    =>

    (printout t "--------------------------------------------" crlf)

    (printout t "I hope i was helpful to you. Don't hesitate to ask anymore
questions." crlf)
)
```

Screenshot of run:

```
CLIPS> (load "rules_v2.clp")
***************
TRUE
CLIPS> (run)
Hello , What can i help you with? (Property/Others)
Property
What area are you facing a problem in
1. Lease-contracts.
2. Other.
Choice : 1

What area are you facing a problem in
1. Rent issues.
2. Duration issues.
Choice : 2

Is the duration period specified?
1. Yes.
2. No.
Choice : 2

Article 563: If the lease is concluded without agreement on a duration or for an indefinite duration, the lease shall be considered concluded for the specified period for rent
--------------------------------------------
I hope i was helpful to you. Don't hesitate to ask anymore questions.
CLIPS> |
```