Knowledgeable contexts for user interaction

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ABSTRACT

ASK, A Simple Knowledgeable System, is a total system for the structuring, manipulation, and communication of information. The ASK user interface is a simple dialect of natural English. The system includes extensive means by which a user group and application programmer can build a knowledgeable context for user interaction. The users themselves can build, modify, and extend their knowledge base. They can add complex definitions that embody knowledge of their domain. They can ground a new tentative knowledge base on more stable ones, modifying and extending their new one without affecting the old.

A truly knowledgeable system must also know how to perform complex tasks in response to terse user inputs, taking over complicated but repetitive tasks on simple cues. The ASK system includes three system-guided dialogues that can be used to build such knowledgeability into a user’s context.
INTRODUCTION

Systems for Experts

It is generally agreed that any computer system which directly serves a group of users must be knowledgeable concerning the domain in which that group is working. The term "knowledge base" is rapidly replacing "database" to describe the information available to the computer in responding to user interaction. One form of knowledge-based system that is receiving a good deal of attention is the expert system. In an expert system, experts build the knowledge base and users draw on this expert knowledge. In the words of Dr. Edward Feigenbaum, of Stanford University, whose seminal work established this important area:

Expert systems can be viewed as intermediaries between experts, who interact with the systems in "knowledge acquisition" mode, and human users who interact with the systems in "consultation mode."

There are, on the other hand, many areas where the using group itself is intimately involved in the building, modification, and extension of their own knowledge base. In the typical research team, management or military staff, or business office, the central activity is the maintenance of the knowledge base in the form of plans, data, designs, and coordination of their operations. Office and manufacturing-automation systems will soon evolve into just such systems. Knowledge-based systems that support these activities must provide a kind of service to their users very different from the kinds provided by expert systems. They are, in the words of Dr. Donald Walker, of SRI International, Systems for Experts.

There are certain properties that a system for experts must have. First, such a system must be natural to use. This implies a reasonable facility for natural language but also for accepting the jargon that rapidly builds up within such a user-group. It implies a capability for text and graphic processing and for numerical and statistical calculation, all as an integral part of the knowledge base itself. Such systems must have means by which their user groups can easily add to, change, and extend their knowledge base as a normal part of their interaction with it. Such changes and extensions can come from many sources. Some will occur as part of the users' interaction with one another: bringing records up to date, writing reports and circulating comments on the work of others, completing design drawings, and scheduling and maintaining the information necessary for coordinating operations. Whole bodies of data may come from other sources, for example by the incorporation of commercially available data or the inclusion of the knowledge bases of subordinate groups. Providing facile means for effecting all of these varied kinds of modification and extension is an essential aspect of systems for experts.

When an expert team uses such a system on a day-to-day basis, many of their tasks will be repetitious, and with experience these tasks will reduce in essence to the specification of a few inputs to control a complex but repetitive process. A system for experts must provide the means for defining such tasks and delegating the tedious details to the system. And the system must know enough to hold a brief dialogue with its user to obtain the instructions necessary for it to complete the task. The specifications of such tasks will be an everyday practice of expert staffs; thus the means for such definition must be facile and a natural part of system interaction.

The ASK System, a System for Experts

This paper is about such a system, the ASK System, a system for experts. ASK, A Simple Knowledgeable System, exists. It is implemented on a Hewlett-Packard HP-9836 desktop computer, in PASCAL. The film shown in connection with this paper is of the ASK System in action. The film is taken in real time. (Many of the examples from the film are repeated in the written form of this paper.) In a single paper it would be impossible both to give a broad coverage and also to treat in any depth the various capabilities of this system. In this paper we have chosen the former to give a broad overview of the ASK System. For those who are seriously interested, we would be glad to find an appropriate opportunity to discuss more detailed aspects of the system.

To introduce you to ASK, we will start out with a few examples of queries of a simple database concerning ships. The uninitiated user may wish simply to ask:

1) How many ships are there?
2) What is known about ships?
   some are in the following classes:
   - Navy
   - freighter
   - old
   - tanker
   all have the following attributes:
   - destination
   - home port
   - cargo

From the collection of the Computer History Museum (www.computerhistory.org)
all have the following number attributes:

age
some have the following number attributes:

speed
length
beam

List the destinations and home port of each ship.

<table>
<thead>
<tr>
<th>ship</th>
<th>destination</th>
<th>home port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ubu</td>
<td>New York</td>
<td>Naples</td>
</tr>
<tr>
<td>Maru</td>
<td>Oslo</td>
<td>Tokyo</td>
</tr>
<tr>
<td>Kittyhawk</td>
<td>Naples</td>
<td>Boston</td>
</tr>
<tr>
<td>Alamo</td>
<td>London</td>
<td>London</td>
</tr>
<tr>
<td>North Star</td>
<td>London</td>
<td>New York</td>
</tr>
<tr>
<td>Nimitz</td>
<td>London</td>
<td>Norfolk</td>
</tr>
<tr>
<td>Saratoga</td>
<td>unknown</td>
<td>Norfolk</td>
</tr>
</tbody>
</table>

What is the number of New York ships?
There are 2 answers:
1. New York (destination) ships
   2
2. New York (home port) ships
   1

What about Norfolk?
What is the number of Norfolk ships?
Norfolk (home port) ships?
2

Wheat is carried by how many ships?
2

Coal and oil?
coil and oil is carried by how many ships?
ships
coal 1
oil 2

How many ships are there with length greater than 600 feet?
Spelling correction: “inegth” to “length”
2

What are they?
What are they [ships with length greater than 600 feet]?
North Star
Kittyhawk

What ships that carry wheat go to London or Oslo?
ships that carry wheat
London Maru
Oslo Alamo

Does the Maru carry wheat and go to London?
yes

How many articles are there about knowledge representation?
15

Which ones were written in 1979 by each author?
Which [articles about knowledge representation] were written in 1979 by each author?
author articles about knowledge representation
G. G. Hendrix Encoding Knowledge in Partitioned Networks
R. J. Brachman On the Epistemological Status of Semantic Networks

What other articles has Hendrix written?
What other articles [than articles about knowledge representation] has Hendrix written?
LIFER: A Natural Language Interface Facility

Or a knowledge base concerning one’s mail:

Who have I received mail from?
John Smith
Peter Jackson

Display my mail from John Smith.
Fred, Your budget looks good to me. Suggest you submit it as is.
John

File it in my budget correspondence file.
File [my mail from John Smith] in my budget correspondence file.
my mail from John Smith has been filed.

You have seen examples from three different contexts. How contexts are created and related to one another will be discussed below.

EXTENDING USER CONTEXTS

The major emphasis of this paper is on the ability of the users of ASK to structure their own knowledge bases. We turn now to those issues.

Extending the Knowledge Base and Adding and Changing Data

A knowledge base typically contains objects and classes of these objects; it also has knowledge of the attributes that these objects might possess and of relationships that might hold among them. The ASK System accepts objects of several types: individuals (e.g., Boston, John), numbers, texts (e.g., the text of a given memo or letter), matrices, and so on. The following sequence illustrates how a user can extend his or her knowledge base by adding new objects, classes, attributes, and relations. We will use the artificial-intelligence (AI) bibliography context for this illustration. Note how easy it is to add new attributes, “fields” in relational-database terminology, and how text objects are handled in a straightforward way as integral parts of the knowledge base.
Create the attribute: rating
- The attribute rating has been added.
- create individuals: seminal, excellent, fair and impossible
- The following individuals have been added:
  - seminal
  - excellent
  - fair
  - impossible
- The rating of Winograd's 1980 paper in Cognitive Science is excellent.
  - excellent has been added as the rating of Winograd's 1980 paper in Cognitive Science.
- rating of A Framework for Representing Knowledge is impossible.
  - impossible has been added as the rating of A Framework for Representing Knowledge.
- Scripts, Plans, Goals and Understanding's rating is seminal.
  - seminal has been added as the rating of Scripts, Plans, Goals and Understanding.
- The rating of Minsky's paper in The Psychology of Computer Vision is seminal.
  - impossible has been replaced by seminal as the rating of Minsky's paper in The Psychology of Computer Vision.
- List the author of each paper that has a rating of either seminal or excellent.

<table>
<thead>
<tr>
<th>paper</th>
<th>author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scripts, Plans, Goals and Understanding</td>
<td>R. C. Schank</td>
</tr>
<tr>
<td>A Framework for Representing Knowledge</td>
<td>M. Minsky</td>
</tr>
<tr>
<td>What Does It Mean to Understand Natural Language</td>
<td>T. Winograd</td>
</tr>
</tbody>
</table>

create an individual/text relation named comment
- The individual/text relation comment has been added.
- Create a comment on A General Syntactic Processor
  Please enter text:
  - Best paper on chart parsers.
  - A new text has been added as comment on A General Syntactic Processor.
- Display my comments on each paper by R. M. Kaplan.
  paper by R. M. Kaplan comments
  - A General Syntactic Processor
  - Best paper on chart parsers.

**Definitions**

The examples so far illustrate how one can build, query, and modify a database. However, to make such a system more knowledgeable, one needs to be able to add definitions that embody interrelationships among the basic objects, classes and attributes of the data. The simplest form of definition is synonym:

- definition: tub: old ship
  - Defined.

Although this form of definition allows one to introduce abbreviations and many forms of jargon, more extensive forms of definition are desirable. Here are two illustrations using the ship file context. In the second definition, note the use of quotes to create local "variables."

- definition: area: length * beam
  - Defined.
- List the length, beam and area of each tub.
<table>
<thead>
<tr>
<th>tub</th>
<th>length</th>
<th>beam</th>
<th>area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ubu</td>
<td>231.667</td>
<td>48</td>
<td>11120.106</td>
</tr>
<tr>
<td>Alamo</td>
<td>564.5</td>
<td>84</td>
<td>47418.0</td>
</tr>
</tbody>
</table>
- definition: meter: 39.37 * (foot/12)
  - Defined.
- beam of the Alamo squared in square meters?
  - 655.526472343 square meters
- definition: longest "ship": "ship" whose length is the maximum length of "ship"'s
  - Defined.
- What is the length in meters of the longest ship whose home port is Naples?
  - 121.92043840 meters

The notion of what is long may be quite different in another context, say in the bibliography context.

- definition: long: paper whose number of pages exceeds 49
  - Defined.
- definition: long: book whose number of pages exceeds 800
  - Defined.
- What AI bibliography items are long?
  - there are 2 answers:
    1. (1) long: paper whose number of pages exceeds 49
       - Physical Symbol Systems
       - A General Syntactic Processor
    2. (2) long: book whose number of pages exceeds 800
       - Human Problem Solving
- What long books were written in 1972?
  - long: book whose number of pages exceeds 800
  - Human Problem Solving

Family relationships make for a good illustration of definitions; we switch to a small family-relationships context.

- What are attributes?
  - individual/individual attributes:
    - spouse
- What are relations?
  - individual/individual relations:
    - parent
- What are classes?
  - individual classes:
    - male
    - female
- What are definitions?
  - definition: mother: female parent
  - definition: father: male parent
  - definition: child: converse of parent
  - definition: sibling: child of parent but not oneself
  - definition: cousin: child of sibling of parent
- List the father and mother of each of Billy Smith's cousins.
  - Billy Smith's cousins
    - father
    - mother
    - Baby Boyd
    - Robert Boyd
    - Jill Boyd
Verbs

Initially, the only verbs known to the ASK System are "to be" and "to have." The user can add new verbs by paraphrase, as in the following illustration:

- verb: ships "go" to New York: destination of ships is New York defined.
- verb: ships "carry" coal from London to Boston: ships have coal as cargo, have London as home port and go to Boston defined.

Each old ship carries what cargo to each port?
- old ship | port | cargo
  Ubu      | New York | oil
  Tokyo    | oil      |
  Alamo    | London   | wheat
  Alamo    | London   | coal

- What is carried by the Alamo?
  wheat
  coal

- Wheat is carried to London from what ports?
  New York

- What cities does the Alamo carry wheat to?
  London

Basing One Context on Another

We have shown how users can add new vocabulary, data, and definitions to their contexts. However, this would be a tedious way to build a large and useful database from scratch. We now discuss two ways of incorporating bodies of existing data in a user context.

Consider a user of the AI bibliography context illustrated above, who wants to build a wider bibliography context, adding new information—vocabulary, data, and definitions—without, however, disturbing the old one. To do so, all he or she needs to do is select a new name, say CS bibliography, and type

Base CS Bibliography on AI Bibliography

The result of this basing action is a new context. Upon entering this new context—

- Enter CS Bibliography

—one can make additions:

- individuals: An Introduction to Database Systems, C. J. Date
  The following individuals have been added:
  An Introduction to Database Systems C. J. Date
  An Introduction to Database Systems is a book.
  An Introduction to Database Systems has been added to book.
  The author of An Introduction to Database Systems is C. J. Date.

C. J. Date has been added as author of An Introduction to Database Systems.
- Keyword of An Introduction to Database Systems is database.
  database has been added as keyword of An Introduction to Database Systems.
- Who wrote what about databases?
  author
  D. L. Waltz Natural Language Access to a Large Data Base
  C. J. Date An Introduction to Database Systems

These additions to the CS bibliography would not affect the AI bibliography context. However, additions and modifications that are subsequently made in the AI bibliography context would automatically be reflected in the CS bibliography. Several contexts can be based on a given one, and one context can be based on several; thus a hierarchical structure of contexts can be realized. All contexts are directly or indirectly based on the BASE context, which contains the function words and grammar of the ASK dialect of English, the mathematical and statistical capabilities, and the word processor.

The Bulk Data Input Dialogue

There is a great deal of information in existing databases, and a system for experts must facilitate the addition of such data to the knowledgeable user's context. In the ASK System there is a dialogue, called the Bulk Data Input Dialogue, which can be called on to build an existing database into one's context. The result not only integrates these new data with those already in the context, according to the ASK dialect of English, but in many circumstances will make the use of these data more responsive to users' needs.

The Bulk Data Input Dialogue prompts the user for necessary information to (a) establish the physical structure of the database to be included (b) add necessary classes and attributes as needed for the new data entries. The user also indicates, using English constructions, the informational relationships among the fields in the physical records of the database file that he or she wishes carried over to the ASK context. We will not illustrate the Bulk Data Input Dialogue here, since it is similar to two other ASK System dialogues that will be described and illustrated below.

KNOWLEDGEABLE DIALOGUES

In the day-to-day use of an interactive system, a user is very often involved in repetitive tasks; much of the drudgery of such tasks could be shifted onto the system if it were more knowledgeable. Such a knowledgeable system, as it goes about a task for the user, may need additional information from the user. What information it needs at a particular point may depend on earlier user inputs and the current state of the database.

Some have raised the question, whether natural language is always the most desirable medium for a user's communication with the computer. Expert systems, for example, have tended
to use computer-guided dialogues. One simple form such a
dialogue might take is illustrated by the following dialogue, in
which a new entry is added to the AI bibliography:

> New bibliography item
> Add to what bibliography? AI Bibliography
> Title: Natural Language Processing
> Author: Harry Tennant
> Keyword: natural language
> Keyword: syntax processing
> Keyword: speech acts
> Keyword: Natural Language Processing has been added to the AI
Bibliography.
> Title:
The “new bibliography item” dialogue is completed.
> What AI Bibliography items were written by Harry Ten
nant?
Experience with the Evaluation of Natural Language Question Answerers
Natural Language Processing

Other alternative media for user/system communication are
menu boards, selection arrays, and query by example. Many
other cryptic ways to communicate user needs to a knowledge­
able system can be thought of; often the most useful means
will be highly specific to the application. For example: in
positioning cargo in the hold of a ship, one would like to be
able to display the particular cargo space, showing its current
cargo, and to call for and move into place other items that are
to be included.

In the past, enabling the system to respond more intelli­
gently to the user’s needs required the provision of elaborate
programs, since the user’s tasks may be quite involved, with
complex decision structures. The introduction of terse, effec­
tive communication has incurred long delays; thus a user’s
changing needs had little chance of being met. In the ASK
System, the users themselves can provide this knowledge.
They can tell the system how to elicit the necessary informa­
tion and how to complete the required task. This ASK capa­
bility is quite easy to use, opening the way for its everyday use
in extending the knowledgeable responsiveness of the com­
puter to the user’s immediate needs.

The Dialogue-Designing Dialogue

The user must provide the system with knowledge of a
particular task; more precisely he or she must program this
knowledge into the system. The result of this programming
will be a system-guided dialogue that the user can subse­
quently initiate and that will then elicit the necessary inputs
that it needs. Using these inputs in conjunction with the
knowledge already available, particularly the database, the
system completes the task. It is this system-guided dialogue
that the user must be able to design.

In the ASK System, there is a special dialogue that can be
used to design system-guided dialogues to accomplish particu­
lar tasks. We call this the Dialogue Designing Dialogue
(DDD). Using DDD, the user becomes a computer-aided
designer. Since DDD, in conducting its dialogue with the
user, only requires simple responses or responses phrased in
ASK English, the user need not have any programming skill
or experience at all. Using DDD, the user alone can replace
a tedious, repetitive task with an efficient system-guided
dialogue, all in a natural-language environment. The ASK
DDD constitutes a high-level, natural-language programming
capability. We hasten to add that it is not a general-purpose
programming environment. It is for “ultra-high”-level pro­
gramming, gaining its programming efficiency through the
assumption of an extensive vocabulary and knowledge base on
which it can draw.

DDD is based on the concept of an interaction node. Such
a node represents a point in the dialogue where the computer
turns to the user for additional input, that is, more data or
further instruction as to what is desired. At such a node, the
system prompts the user as to what information it needs,
digests the user’s response, takes indicated actions, and
progresses to another node that it perceives as the next place
for interaction. As it does so, it maintains its own local con­
text, remembering what the user has told it and what it is
supposed to do.

The DDD dialogue sets up all of this; therefore it is itself
quite complex in its dialogue paths to elicit the information it
needs, information about prompts, expectations of user re­
sponses, diagnostic messages, references to the database,
maintenance of the local context, and so on. We can only
illustrate a small part of the DDD dialogue here, but it should
give you some feel for how the DDD dialogue works. Earlier
in this paper, we used as an illustration a simple dialogue for
adding a new item to the AI bibliography. Here is the DDD
dialogue that defined that “new bibliography item” dialogue.

> new dialogue
> What user input should initiate this dialogue? new biblio­
graphy item
Please define each node in turn.
Designing node 1:
> What is the prompt message for node 1: Add to what bibli­
ography?
> If you wish the response to this prompt to be assigned to a
field, give the field number: 1
> What is the type option for node 1: 2
> What is the response option for a nil response to node 1: 1
> What is the response option for a bad evaluation of user
response: 2
> What is the response option for a good evaluation of user
response: 2
> Transfer to what node: 2
Node 1 is completed.
Designing node 2:
The fields that have been assigned on entering this node are:
<1>: Add to what bibliography?
> What is the prompt message for node 2: Title:
> If you wish the response to this prompt to be assigned to a
field, give the field number: 2
> What is the type option for node 2: 2
The Use of Forms as a Dialogue Medium

The form is an efficient means of communication with which we are all familiar. A number of computer systems include a forms package. For most of these, however, filling in a form results only in a document; the form does not constitute a medium for interacting with the knowledge base or controlling the actions of the system. The ASK forms capability enlarges the roles and ways in which forms can be used as a medium for user interaction. As the user fills in the fields of a form, the forms capability includes the functions of a report generator. Letters and memos can be written as special cases of form filling, automatically adding dates, addresses, and so on, and filing and dispatching the result.

It must be easy and natural to add new forms, if they are to be a convenient tool. That is the function of the Forms Designing Dialogue. Much like the Bulk Data Input Dialogue and the DDD, the Forms Designing Dialogue holds a dialogue with the user through which he or she can specify the fields of the form itself and the processing to be automatically accomplished at the time the Form is filled in. The Forms Designing Dialogue also supplies the user with a medium for testing and debugging the forms processing. If we consider this process in general terms, we can say that the design of forms is a special case of designing dialogue. Such a dialogue consists of a sequence of questions and answers, with the user’s response determining the further course of the dialogue. The designer specifies the initial sequence of questions, the responses that will be acceptable, and what will happen after each possible response. The forms processing is essentially a sequence of questions and answers, or dialogue. The designer specifies the processing rules that will be used to determine the values of the fields in the form. The designer specifies the rules that will be used to determine the further course of the dialogue. The designer specifies the rules that will be used to determine the further course of the dialogue.
Designing Dialogue makes many options available, only a few of which are illustrated here.

The protocol to be included here as an example of the Forms Designing Dialogue is designed to illustrate the features mentioned above, and does not reflect any actual form. It utilizes the notion of a field as in the DDD, allowing a field to be referred to by number.

new form
form name: shipping
start your design:

Shipping Form
ship: 2222222222222222
port: 2222222222222222

<table>
<thead>
<tr>
<th>quantity item</th>
<th>price</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1111</td>
<td>2222222222222222</td>
<td>$111.11</td>
</tr>
<tr>
<td>commander:</td>
<td>222222222222222222</td>
<td></td>
</tr>
</tbody>
</table>

Please confirm the design ("y" or "n"): y
Do you want to repeat some lines? (y/n): y
repetition field: <3>
repetition frequency: 0
repetition field: What fields are to be filled by the computer?
field: <2>
value: home port of <1>
if unable, what message should be used:
<1> does not have a home port.
if unable, what option should be taken: 1
field: <5>
value: price of <4>
if unable, what message should be used:
if unable, what option should be taken:
field: <6>
value: <3> * <5>
if unable, what message should be used:
if unable, what option should be taken:
field:
What conditions should be verified by the computer?
condition: <3> is less than the inventory of <4>?
if fail, what message should be used?
There are not enough <4> s in stock.
if fail, what option should be taken? 2
condition:
Actions to be taken on completion of the form?
update data base: Reduce inventory of <4> by <3>.
update data base: Commander of <1> is <7>.
update data base:
name of completed form: Shipping List for <1>

We will now fill in the form that was just designed. To illustrate the fact that the database will be changed as a result of filling the form, we first ask the questions:

What is the home port and commander of each old ship?
There are 2 answers:
(1) There is no commander.
(2) ship
    home port
    Ubu
    Naples
    Alamo
    London

Who is John Smith?
The following words are not in the vocabulary: John Smith

Inventory of wheat and hydrochloric acid?

<table>
<thead>
<tr>
<th>wheat</th>
<th>inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>86.7</td>
<td>123400.</td>
</tr>
</tbody>
</table>

Note that the home port of the Alamo is London and that it does not have a commander, further that John Smith is not known to the system.

Fill shipping

(For the purposes of the published paper, in contrast to the film shown at the presentation of the paper, only the initial and final copies of the form are given, underscores indicate fields filled in by the user, all other fields being automatically filled by the System)

(before)

Shipping Form
ship: 
port: 

<table>
<thead>
<tr>
<th>quantity item</th>
<th>price</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>commander:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(after)

Shipping Form
ship: Alamo
port: London

<table>
<thead>
<tr>
<th>quantity item</th>
<th>price</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 wheat</td>
<td>35.75</td>
<td>107.25</td>
</tr>
<tr>
<td>500 hydrochloric acid</td>
<td>2.50</td>
<td>1250.00</td>
</tr>
</tbody>
</table>

commander: John Smith

Shipping List for Alamo has been filed in Shipping Invoice File.
Shipping List for Alamo has been mailed to Jones.

- Fill shipping has been completed.

- List the home port and commander of each ship.
  
<table>
<thead>
<tr>
<th>Ship</th>
<th>Home Port</th>
<th>Commander</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ubu</td>
<td>Naples</td>
<td></td>
</tr>
<tr>
<td>Alamo</td>
<td>London</td>
<td>John Smith</td>
</tr>
</tbody>
</table>

- Inventory of wheat and hydrochloric acid?

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>83.7</td>
</tr>
<tr>
<td>Hydrochloric acid</td>
<td>122900</td>
</tr>
</tbody>
</table>

- What is in the Shipping Invoice File?
  
<table>
<thead>
<tr>
<th>Invoice File</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping List for Alamo</td>
</tr>
<tr>
<td>Shipping List for Maru</td>
</tr>
</tbody>
</table>