SUMMARY

**[0005]** According to a first aspect of the present disclosure, there is provided a method for identifying a match with a product, comprising: extracting, by a processor, one or more attributes relating to a product from data indicated in a request for identifying the product, each of the one or more attributes describing the product, wherein the data comprises an image of the product and extracting the one or more attributes comprises identifying the one or more attributes from the image based on a visual question and answering (VQA) paradigm; adapting, by the processor, the one or more attributes based on historical data relating to the product into a same format as that of one or more entries in a database, the database comprising one or more entries for each of a plurality of products; and identifying a match with the product from the plurality of products, the identification based on comparing, by the processor, the one or more attributes with each corresponding entry of the plurality of products; selecting one or more products from the plurality of products in the database based on a rule-based comparison of at least one of the one or more attributes with each corresponding entry in the database; identifying the match with the product from the selected one or more products, the identification based on comparing, by the processor, the one or more attributes with each corresponding entry of the selected one or more products; calculating a score for each of the selected one or more products based on the comparison; identifying the match with the product when the score for the match is a highest score of the calculated scores and greater than a threshold value; verifying whether each of the selected one or more products excluding the identified match having a score greater than the threshold value is also a match with the product; and retraining the processor based on the verification.

**[0006]** According to a second aspect of the present disclosure, there is provided a system for identifying a match with a product, comprising: at least one processor; and at least one memory including computer program code; the at least one memory and the computer program code configured to, with the at least one processor, cause the system at least to: extract, by a processor, one or more attributes relating to a product from data indicated in a request for identifying the product, each of the one or more attributes describing the product, wherein the data comprises an image of the product and extracting the one or more attributes comprises identifying the one or more attributes from the image based on

a visual question and answering (VQA) paradigm; adapt, by the processor, the one or more attributes based on historical data relating to the product into a same format as that of one or more entries in a database, the database comprising one or more entries for each of a plurality of products; and identify a match with the product from the plurality of products, the identification based on comparing, by the processor, the one or more attributes with each corresponding entry of the plurality of products; select one or more products from the plurality of products in the database based on a rule-based comparison of at least one of the one or more attributes with each corresponding entry in the database; identify the match with the product from the selected one or more products, the identification based on comparing, by the processor, the one or more attributes with each corresponding entry of the selected one or more products; calculate a score for each of the selected one or more products based on the comparison; identify the match with the product when the score for the match is a highest score of the calculated scores and greater than a threshold value; verify whether each of the selected one or more products excluding the identified match having a score greater than the threshold value is also a match with the product; and retrain the processor based on the verification.

## CLAIMS

What is claimed is:

1. A method for identifying a match with a product, comprising

extracting, by a processor, one or more attributes relating to a product from data indicated in a request for identifying the product, each of the one or more attributes describing the product, wherein the data comprises an image of the product and extracting the one or more attributes comprises identifying the one or more attributes from the image based on a visual question and answering (VQA) paradigm;

adapting, by the processor, the one or more attributes based on historical data relating to the product into a same format as that of one or more entries in a database, the database comprising one or more entries for each of a plurality of products; ~~and~~

identifying a match with the product from the plurality of products, the identification based on comparing, by the processor, the one or more attributes with each corresponding entry of the plurality of products;

selecting one or more products from the plurality of products in the database based on a rule-based comparison of at least one of the one or more attributes with each corresponding entry in the database;

identifying the match with the product from the selected one or more products, the identification based on comparing, by the processor, the one or more attributes with each corresponding entry of the selected one or more products;

calculating a score for each of the selected one or more products based on the comparison;

identifying the match with the product when the score for the match is a highest score of the calculated scores and greater than a threshold value;

verifying whether each of the selected one or more products excluding the identified match having a score greater than the threshold value is also a match with the product; and

retraining the processor based on the verification.

~~2. The method of claim 1, wherein identifying the match with the product from the plurality of products further comprises:~~

~~selecting one or more products from the plurality of products in the database based on a rule-based comparison of at least one of the one or more attributes with each corresponding entry in the database; and~~

~~identifying the match with the product from the selected one or more products, the identification based on comparing, by the processor, the one or more attributes with each corresponding entry of the selected one or more products.~~

~~3. The method of claim 2, wherein comparing the one or more attributes with each corresponding entry of the selected one or more products further comprises:~~

~~calculating a score for each of the selected one or more products based on the comparison; and~~

~~identifying the match with the product when the score for the match is a highest score of the calculated scores and greater than a threshold value.~~

~~4. The method of claim 3, further comprising:~~

~~verifying whether each of the selected one or more products excluding the identified match having a score greater than the threshold value is also a match with the product; and~~

~~retraining the processor based on the verification.~~

~~5~~2. The method of claim ~~2~~1, wherein selecting the one or more products from the plurality of products in the database based on the rule-based comparison further comprises:

identifying one or more key attributes from the one or more attributes; and

selecting the one or more products from the plurality of products in the database based on comparing the one or more key attributes with each corresponding entry in the database.

~~6~~3. The method of claim 1, further comprising adapting, by the processor, the one or more attributes into at least one of a unit of measurement, quantity, language or item name that is the same as that of one or more entries in the database.

~~7~~4. The method of claim 1, wherein the database further indicates an identifier for each of the plurality of products, the method further comprising mapping the product with the identifier of the identified match.

~~8~~5. A system for identifying a match with a product, comprising:

at least one processor; and

at least one memory including computer program code;

the at least one memory and the computer program code configured to, with the at least one processor, cause the system at least to:

extract, by a processor, one or more attributes relating to a product from data indicated in a request for identifying the product, each of the one or more attributes describing the product, wherein the data comprises an image of the product and extracting the one or more attributes comprises identifying the one or more attributes from the image based on a visual question and answering (VQA) paradigm;

adapt, by the processor, the one or more attributes based on historical data relating to the product into a same format as that of one or more entries in a database, the database comprising one or more entries for each of a plurality of products; ~~and~~

identify a match with the product from the plurality of products, the identification based on comparing, by the processor, the one or more attributes with each corresponding entry of the plurality of products;

select one or more products from the plurality of products in the database based on a rule-based comparison of at least one of the one or more attributes with each corresponding entry in the database;

identify the match with the product from the selected one or more products, the identification based on comparing, by the processor, the one or more attributes with each corresponding entry of the selected one or more products;

calculate a score for each of the selected one or more products based on the comparison;

identify the match with the product when the score for the match is a highest score of the calculated scores and greater than a threshold value;

verify whether each of the selected one or more products excluding the identified match having a score greater than the threshold value is also a match with the product; and

retrain the processor based on the verification.

~~9. The system of claim 8, wherein identifying the match with the product from the plurality of products further comprises:~~

~~selecting one or more products from the plurality of products in the database based on a rule-based comparison of at least one of the one or more attributes with each corresponding entry in the database; and~~

~~identifying the match with the product from the selected one or more products, the identification based on comparing, by the processor, the one or more attributes with each corresponding entry of the selected one or more products.~~

~~10. The system of claim 9, wherein comparing the one or more attributes with each corresponding entry of the one or more products further comprises:~~

~~calculating a score for each of the one or more products based on the comparison; and~~

~~identifying the match with the product when the score for the match is a highest score of the calculated scores and greater than a threshold value.~~

~~11. The system of claim 10, further configured to:~~

~~retrain the processor based on a verification whether each of the one or more products excluding the identified match with the product having a score greater than the threshold value is also a match with the product.~~

~~12~~6. The system of claim ~~9~~5, wherein selecting the one or more products from the plurality of products in the database based on a rule-based comparison further comprises:

identifying one or more key attributes from the one or more attributes; and

selecting the one or more products from the plurality of products in the database based on comparing the one or more key attributes with each corresponding entry in the database.

~~13~~7. The system of claim ~~8~~5, further configured to:

adapt, by the processor, the one or more attributes into at least one of a unit of measurement, quantity, language or item name that is the same as that of one or more entries in the database.

~~14~~8. The system of claim ~~8~~5, wherein the database further indicates an identifier for each of the plurality of products, and wherein the system is further configured to map the product with the identifier of the identified match.