[CLAIMS]

[Claim 1]
An authentication system, comprising:
a first authentication apparatus configured to receive first access information of a user and an inquiry about an authentication type from a first business apparatus, determine a first risk level of an access from the user to the first business apparatus, identify an authentication type with respect to the user based on the first risk level and respond to the first business apparatus, receive a user-input password in accordance with the authentication type and an authentication request from the first business apparatus, perform an authentication process of the user based on the user-input password, and respond to the first business apparatus with an authentication result;
a second authentication apparatus configured to receive second access information of the user and an inquiry about an authentication type from a second business apparatus, determine a second risk level of an access from the user to the second business apparatus, identify an authentication type with respect to the user based on the second risk level and respond to the second business apparatus, receive a user-input password in accordance with the authentication type and an authentication request from the second business apparatus, perform an authentication process of the user based on the user-input password, and respond to the second business apparatus with an authentication result; and
a common risk determination table configured to store a common risk determination condition for calculating a risk level of an access from the user to the first business apparatus or the second business apparatus, wherein
the first authentication apparatus includes a first update condition table configured to store a first update condition for updating the common risk determination condition, and is configured to determine the first risk level based on the first access

information and the common risk determination condition, and update the common risk determination condition when the authentication request from the first business apparatus satisfies the first update condition, and

the second authentication apparatus includes a second update condition table configured to store a second update condition for updating the common risk determination condition, and is configured to determine the second risk level based on the second access information and the common risk determination condition, and update the common risk determination condition when the authentication request from the second business apparatus satisfies the second update condition.

[Claim 2]

The authentication system according to claim 1, wherein

the first authentication apparatus includes an individual risk determination table configured to store an individual risk determination condition for calculating a risk level of an access from the user to the first business apparatus,

the first update condition table is configured to store a third update condition for updating the individual risk determination condition, and

the first authentication apparatus is configured to update the individual risk determination condition when the authentication request from the first business apparatus satisfies the third update condition.

[Claim 3]

An authentication method by a common risk determination table which stores a common risk determination condition for calculating a risk level of an access from a user to a first business apparatus or a second business apparatus, a first authentication apparatus including a first update condition table which stores a first update condition for updating the common risk determination condition,

and a second authentication apparatus including a second update condition table which stores a second update condition for updating the common risk determination condition,
the authentication method comprising:
causing the first authentication apparatus to execute the steps of:
receiving first access information of a user and an inquiry about an authentication type from the first business apparatus,
determining a first risk level of an access from the user to the first business apparatus based on the first access information and the common risk determination condition, and identifying an authentication type with respect to the user based on the first risk level;
responding to the first business apparatus with the identified authentication type;
receiving a user-input password in accordance with the authentication type and an authentication request from the first business apparatus and performing an authentication process of the user based on the user-input password;
responding to the first business apparatus with an authentication result; and
updating the common risk determination condition when the authentication request from the first business apparatus satisfies the first update condition, and
causing the second authentication apparatus to execute the steps of:
receiving second access information of the user and an inquiry about an authentication type from the second business apparatus,
determining a second risk level of an access from the user to the second business apparatus based on the second access information and the common risk determination condition, and identifying an authentication type with respect to the user based on the second risk level;
responding to the second business apparatus with the identified

authentication type;
receiving a user-input password in accordance with the authentication type and an authentication request from the second business apparatus and performing an authentication process of the user based on the user-input password;
responding to the second business apparatus with an authentication result; and
updating the common risk determination condition when the authentication request from the second business apparatus satisfies the second update condition.

[Claim 4]
An authentication system, comprising:
a first authentication apparatus configured to receive first access information of a user and an inquiry about an authentication type from a first business apparatus, determine a first risk level of an access from the user to the first business apparatus, identify an authentication type with respect to the user based on the first risk level and respond to the first business apparatus, receive a user-input password in accordance with the authentication type and an authentication request from the first business apparatus, perform an authentication process of the user based on the user-input password, and respond to the first business apparatus with an authentication result;
a second authentication apparatus configured to receive second access information of the user and an inquiry about an authentication type from a second business apparatus, determine a second risk level of an access from the user to the second business apparatus, identify an authentication type with respect to the user based on the second risk level and respond to the second business apparatus, receive a user-input password in accordance with the authentication type and an authentication request from the second business apparatus, perform an authentication process of the user based on the user-input password, and respond to the second business

apparatus with an authentication result; and
a common risk determination unit configured to store a common risk determination condition for calculating a risk level of an access from the user to the first business apparatus or the second business apparatus, wherein
the authentication system includes a first update condition table configured to store a first risk determination update unit for updating the common risk determination condition, and is configured to determine the first risk level based on the first access information and the common risk determination condition, and update the common risk determination condition when the authentication request from the first business apparatus satisfies the first update condition, and
the authentication system includes a second risk determination update unit configured to store a second update condition for updating the common risk determination condition, and is configured to determine the second risk level based on the second access information and the common risk determination condition, and update the common risk determination condition when the authentication request from the second business apparatus satisfies the second update condition.

[Claim 5]
The authentication system according to claim 4, wherein
the first authentication apparatus includes an individual risk determination table configured to store an individual risk determination condition for calculating a risk level of an access from the user to the first business apparatus,
the first update condition table is configured to store a third update condition for updating the individual risk determination condition, and
the first authentication apparatus is configured to update the individual risk determination condition when the authentication request from the first business apparatus satisfies the third update

condition.

[Claim 6]
The authentication system according to claim 4 wherein the first update condition and the second update condition are the same update condition.

[Claim 7]
An authentication method by a common risk determination unit which stores a common risk determination condition for calculating a risk level of an access from a user to a first business apparatus or a second business apparatus, a first authentication apparatus including a first risk determination update unit which stores a first update condition for updating the common risk determination condition, and a second authentication apparatus including a second risk determination update unit which stores a second update condition for updating the common risk determination condition, the authentication method comprising:
causing the first authentication apparatus to execute the steps of:
receiving first access information of a user and an inquiry about an authentication type from the first business apparatus,
determining a first risk level of an access from the user to the first business apparatus based on the first access information and the common risk determination condition, and identifying an authentication type with respect to the user based on the first risk level;
responding to the first business apparatus with the identified authentication type;
receiving a user-input password in accordance with the authentication type and an authentication request from the first business apparatus and performing an authentication process of the user based on the user-input password;
responding to the first business apparatus with an authentication result; and

updating the common risk determination condition when the authentication request from the first business apparatus satisfies the first update condition, and

causing the second authentication apparatus to execute the steps of:

receiving second access information of the user and an inquiry about an authentication type from the second business apparatus,

determining a second risk level of an access from the user to the second business apparatus based on the second access information and the common risk determination condition, and identifying an authentication type with respect to the user based on the second risk level;

responding to the second business apparatus with the identified authentication type;

receiving a user-input password in accordance with the authentication type and an authentication request from the second business apparatus and performing an authentication process of the user based on the user-input password;

responding to the second business apparatus with an authentication result; and

updating the common risk determination condition when the authentication request from the second business apparatus satisfies the second update condition.

[Claim 8]

The authentication method according to claim 7 wherein the first update condition and the second update condition are the same condition.