

DESCRIPTION

TITLE OF INVENTION: INFORMATION PROCESSING APPARATUS,
INFORMATION PROCESSING METHOD, AND COMPUTER READABLE
NON-TRANSITORY RECORDING MEDIUM

TECHNICAL FIELD

[0001] The present invention relates to an information processing apparatus, an information processing method, and a computer readable non-transitory recording medium.

BACKGROUND ART

[0002] Recently, a GUI becomes enhanced, and a technique of outputting an execution result of a computer program by an image is also known. Further, in developing a system for a computer or the like, a test for checking whether or not the system normally operates is conventionally performed. Execution of the test has a problem of a burden put on a test manager such as preparation for the test, execution of the test, checking of results and so on. Hence, recently, a simple test by image comparison is increasingly performed. Patent Literature 1 discloses a technique of verifying an execution result of a computer program by image comparison. The technique in Patent Literature 1 performs image comparison after removing designated mask regions from two images created by the execution of the computer program respectively, and displays a comparison result.

CITATION LIST

PATENT LITERATURE

[0003] Patent Literature 1: Japanese Laid-open
Patent Publication No. 2009-134406

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0004] However, there is also an anticipated case where though a partial image in an image displayed by a test object program and a partial image in an image displayed by a correct program accord, their display positions are different. In such a case, it is desired in some cases to determine that the program normally runs by regarding the partial images as according.

[0005] Embodiments of the present invention have been made in consideration of the above problem, and seek to appropriately execute verification of a program including a description relating to drawing of an image.

SOLUTION TO PROBLEM

[0006] A first aspect of the present invention provides an information processing apparatus comprising:

- a first acquirer configured to acquire a first image displayed on a display in response to execution of an object program being a test object;

- an object image extractor configured to inquire of a browser a position of a partial image in the first image, based on a first image identifier, specify a position of a region where the partial

image is drawn, based on a response from the browser, and extract the partial image at the specified position as an object image, the first image identifier being information identifying the partial image included in the first image and being information specifying a partial image corresponding to a correct image;

a determiner configured to determine whether or not the object image and the correct image accord; and

a display processor configured to display a result of determination by the determiner.

[0006a] A second aspect of the present invention provides an information processing apparatus comprising:

a first acquirer configured to acquire a first image displayed on a display in response to execution of an object program being a test object;

an object image extractor configured to inquire of a browser positions of a plurality of partial images in the first image, based on attribute information, specify each position of a region where each of the plurality of partial images is drawn, based on a response from the browser, and extract the partial image at specified each position as an object image, the attribute information being information indicating a class common to the plurality of partial images included in the first image and being

information indicating that the partial images correspond to a correct image;

a determiner configured to determine whether or not each of a plurality of the object images and each of a plurality of the correct images accord; and

a display processor configured to display a result of determination by the determiner.

[0006b] A third aspect of the present invention provides an information processing method executed by an information processing apparatus, the information processing method comprising:

a first acquisition step of acquiring a first image displayed on a display in response to execution of an object program being a test object;

an object image extraction step of inquiring of a browser a position of a partial image in the first image, based on a first image identifier, specifying a position of a region where the partial image is drawn, based on a response from the browser, and extracting the partial image at the specified position as an object image, the first image identifier being information identifying the partial image included in the first image and being information specifying a partial image corresponding to a correct image,;

a determination step of determining whether or not the object image and the correct image accord; and

a display processing step of displaying a result of determination at the determination step.

[0006c] A fourth aspect of the present invention provides a computer readable non-transitory recording medium with a program causing a computer to execute:

a first acquirer configured to acquire a first image displayed on a display in response to execution of an object program being a test object;

an object image extractor configured to inquire of a browser a position of a partial image in the first image, based on a first image identifier, specify a position of a region where the partial image is drawn, based on a response from the browser, and extract the partial image at the specified position as an object image the first image identifier being information identifying the partial image included in the first image and being information specifying a partial image corresponding to a correct image,;

a determiner configured to determine whether or not the object image and the correct image accord; and

a display processor configured to display a result of determination by the determiner.

[0006d] There is also disclosed an information processing apparatus including: a first acquirer configured to acquire a first image displayed on a display in response to

execution of an object program being a test object;
an object image extractor configured to extract a
partial image as an object image from the first image,
based on first specification information specifying
the partial image, the partial image being included
in the first image and corresponding to a correct
image; a determiner configured to determine whether
or not the

object entire image as in Fig. 7, a CPU 101 extracts a "c1" portion from an object entire image 700 where "c1" being a part of an object partial image "c" is displayed. The CPU 101 further extracts a "c2" portion from an object entire image 710 where "c2" being a portion other than the "c1" of the object partial image "c" is displayed. The CPU 101 then combines the extracted portions to thereby obtain the object partial image "c".

[0044] Note that in the case where one correct partial image is scroll-displayed in the correct entire image, the test apparatus 100 can set also a determination condition for comparing the whole correct image realized by scroll display and the object partial image. Further, in the case where the correct entire image and the object entire image are scroll-displayed, the test apparatus 100 can set also a determination condition of comparing the whole correct partial image and the whole object partial image which are realized by scroll display.

[0045] A third determination condition is for determining that both the images accord when a part of the object partial image and the correct partial image accord. One example of the third determination condition is for determining that both the images accord when a region except a lower side region of the object partial image and a corresponding correct partial image accord. Fig. 8A and Fig. 8B are explanatory views of this determination condition.

CLAIMS

[Claim 1] An information processing apparatus comprising:

a first acquirer configured to acquire a first image displayed on a display in response to execution of an object program being a test object;

an object image extractor configured to inquire of a browser a position of a partial image in the first image, based on a first image identifier, specify a position of a region where the partial image is drawn, based on a response from the browser, and extract the partial image at the specified position as an object image, the first image identifier being information identifying the partial image included in the first image and being information specifying a partial image corresponding to a correct image;

a determiner configured to determine whether or not the object image and the correct image accord; and

a display processor configured to display a result of determination by the determiner.

[Claim 2] The information processing apparatus according to claim 1, further comprising:

a second acquirer configured to acquire a second image displayed on the display in response to execution of a correct program; and

a correct image extractor configured to extract a partial image as a correct image from the second image, based on specification information specifying the partial image of the second image.

[Claim 3] The information processing apparatus according to claim 1 or 2, wherein the object image extractor extracts a partial image drawn according to a description as the object image, the description being associated with the first image identifier in the object program.

[Claim 4] The information processing apparatus according to claim 2, wherein:

the specification information is a second image identifier being information identifying the correct image included in the second image; and

the correct image extractor extracts a partial image drawn according to a description as the correct image, the description being associated with the second image identifier in the correct program.

[Claim 5] An information processing apparatus comprising:

a first acquirer configured to acquire a first image displayed on a display in response to execution of an object program being a test object;

an object image extractor configured to inquire of a browser positions of a plurality of partial images in the first image, based on attribute information, specify each position of a region where each of the plurality of partial images is drawn,

based on a response from the browser, and extract the partial image at specified each position as an object image, the attribute information being information indicating a class common to the plurality of partial images included in the first image and being information indicating that the partial images correspond to a correct image;

a determiner configured to determine whether or not each of a plurality of the object images and each of a plurality of the correct images accord; and

a display processor configured to display a result of determination by the determiner.

[Claim 6] The information processing apparatus according to any one of claims 1 to 5, wherein the determiner determines whether or not the object image and the correct image accord, based on a result of comparison between pixels of the object image and the correct image.

[Claim 7] The information processing apparatus according to any one of claims 1 to 5, wherein the determiner determines whether or not the object image and the correct image accord, based on a result of comparison between an edge detected from the object image and an edge detected from the correct image.

[Claim 8] The information processing apparatus according to any one of claims 1 to 7, wherein the determiner determines that the object image and the correct image accord when a part of the object image and the correct image accord.

[Claim 9] The information processing apparatus according to any one of claims 1 to 7, wherein the determiner determines that the object image and the correct image accord when a region except a part of the object image and a region except a part of the correct image accord.

[Claim 10] The information processing apparatus according to any one of claims 1 to 5, wherein the determiner determines whether or not each of a plurality of object images and a correct image accord, according to a different determination condition, the different determination condition being set in advance for each of the plurality of object images.

[Claim 11] An information processing method executed by an information processing apparatus, the information processing method comprising:

- a first acquisition step of acquiring a first image displayed on a display in response to execution of an object program being a test object;

- an object image extraction step of inquiring of a browser a position of a partial image in the first image, based on a first image identifier, specifying a position of a region where the partial image is drawn, based on a response from the browser, and extracting the partial image at the specified position as an object image, the first image identifier being information identifying the partial image included in the first image and being

information specifying a partial image corresponding to a correct image,;

a determination step of determining whether or not the object image and the correct image accord;
and

a display processing step of displaying a result of determination at the determination step.

[Claim 12] A computer readable non-transitory recording medium with a program causing a computer to execute:

a first acquirer configured to acquire a first image displayed on a display in response to execution of an object program being a test object;

an object image extractor configured to inquire of a browser a position of a partial image in the first image, based on a first image identifier, specify a position of a region where the partial image is drawn, based on a response from the browser, and extract the partial image at the specified position as an object image the first image identifier being information identifying the partial image included in the first image and being information specifying a partial image corresponding to a correct image,;

a determiner configured to determine whether or not the object image and the correct image accord;
and

a display processor configured to display a result of determination by the determiner.