CLAIMS

1. An information processing system, comprising:

a memory configured to store a program and a learned model in which a feature quantity of a heart failure is learned from a plurality of determined electrocardiograms of a plurality of persons via deep learning or machine learning, the plurality of determined electrocardiograms being obtained beforehand and including electrocardiograms in which a stage of the heart failure has been determined;

a processor configured, by reading out the program, to execute:

a reception step of accepting a first electrocardiogram from a first user terminal, the first electrocardiogram including an electrocardiogram of a user;

a reading step of reading out an input first electrocardiogram including an electrocardiogram of a user;

a determination step of determining a heart failure stage of the user based on the first electrocardiogram and the learned model to generate a determination result, the learned model being configured to be updatable by further learning a content determined in the determination step and clinical data of the user the heart failure stage of which has been determined; and

a visual information generation step of generating a visual information based on the determination result, the visual information comprising a text, a still or a moving image, being configured to be displayed at a second user terminal, thereby, allowing the user to grasp the determination results of the heart failure stage,

wherein the second user terminal and the first user terminal are configurable to be either distinct devices or the same device,

wherein the visual information is information for displaying the result of the stage of the heart failure and the change of the heart failure level compared to a past first electrocardiogram.

2. The information processing system according to Claim 1, wherein:

the clinical data is data including at least one of age, gender, BMI (Body Mass Index), PWTT (Pulse Wave Transit Time), blood pressure, heart rate, SDNN (Standard Deviation of The NN Interval), CVRR (Coefficient of Variation of RR Interval), atrial fibrillation, or HRV (Heart Rate Variability).

3. The information processing system according to Claim 1 or Claim 2, wherein:
the first electrocardiogram is configured of one lead.

4. The information processing system according to Claim 3, wherein:
the one lead is a lead I, obtained from a right hand and a left hand of a user.

5. The information processing system according to any one of Claims 1 to 4, wherein the processor is further configured to execute:
a preprocessing step of preprocessing the first electrocardiogram read out in the reading step, wherein the preprocessing is a processing for removing noise in the first electrocardiogram.

6. The information processing system according to any one of Claims 1 to 5, wherein:
the first electrocardiogram is configured of 1 to 50 beats.

7. A program, wherein:
the program allows a computer to execute each step of the information processing system according to any one of Claims 1 to 6.

8. The information processing system according to Claims 1 to 7, wherein the first user terminal comprises a simple electrocardiograph, a wearable terminal, a 12-lead electrocardiograph, a bedside monitor, or a Holter electrocardiograph.

9. The information processing system according to Claims 1 to 7, wherein the second user terminal comprises a computer, a smart phone, or a tablet.