Game : Avoid Catching Coronavirus !

(Let’s kill coronavirus ! (COVID-19))

Summitted by

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Present

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040613222 Object-Oriented Programming

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Unit 1 : Introduction

1) Background and Significance of the project

- After I have already learned JAVA Programming and OOP, I think I can see everything all around in 'Class' better. So, I observe that we are all in COVID-19 pandemic that we must stay with it. First time, I concentrate to design killing coronavirus game, but I prefer to design how to move away from coronavirus game because it reflects on our real situation that we always avoid catching coronavirus in everyday life.

2) Type of project

- Move/Run away from coronavirus, Survival game.

3) Benefits

- Everyone can enjoy playing this game and they can get the challenge that they must move/run away from coronavirus and practice how to be the survivor.

4) Scope of project (Proposal)

- There is a modification from my old proposal as follows.

New Proposal

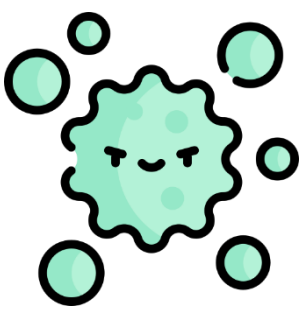
[Details]

- Actor

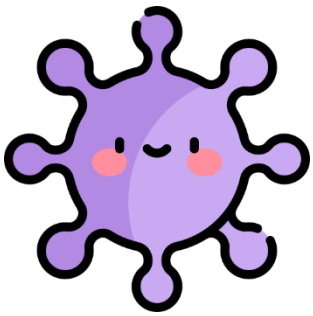
1) Doctor -> Keep away from all coronaviruses in 30 second to get the best vaccine item.

Doctor

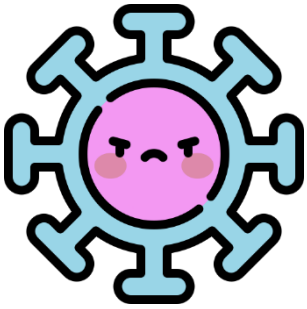
2) Coronavirus (4 strains) -> Fall down in the air and hinder the player cannot get the best vaccine.



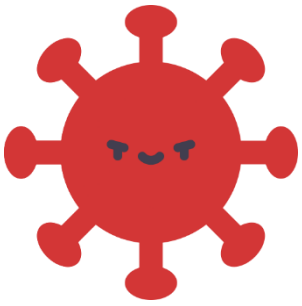
ALPHA



BETA

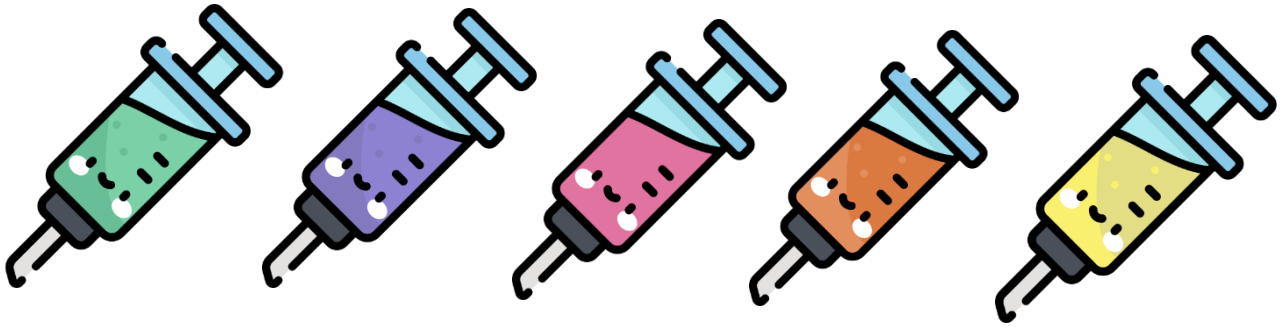


GAMMA

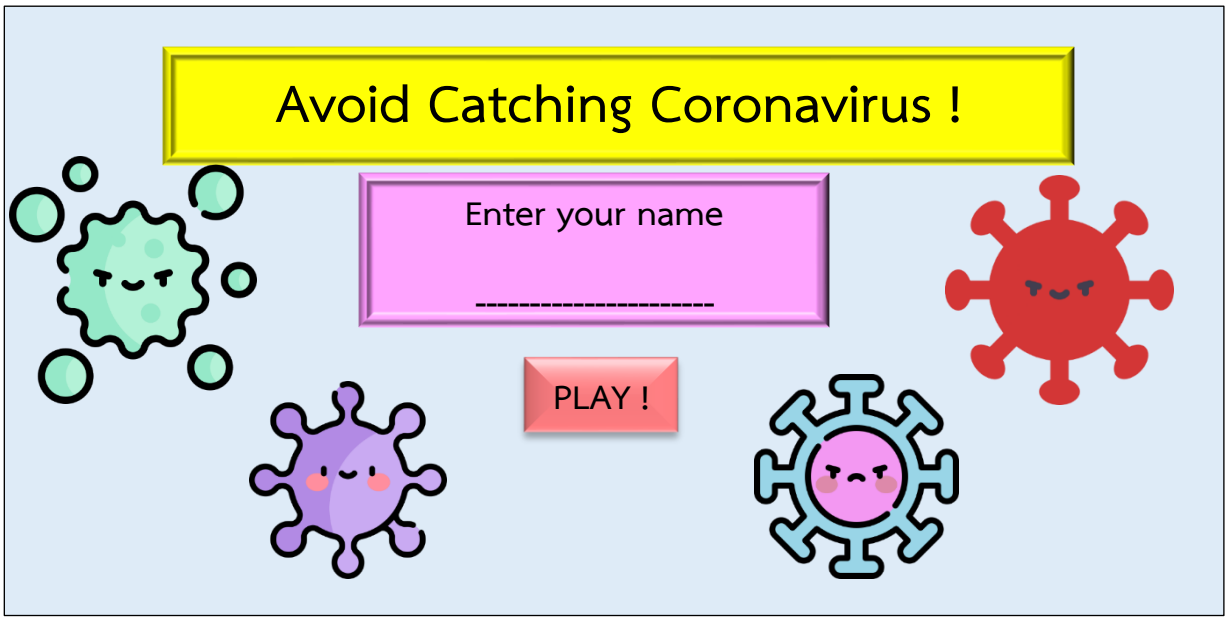


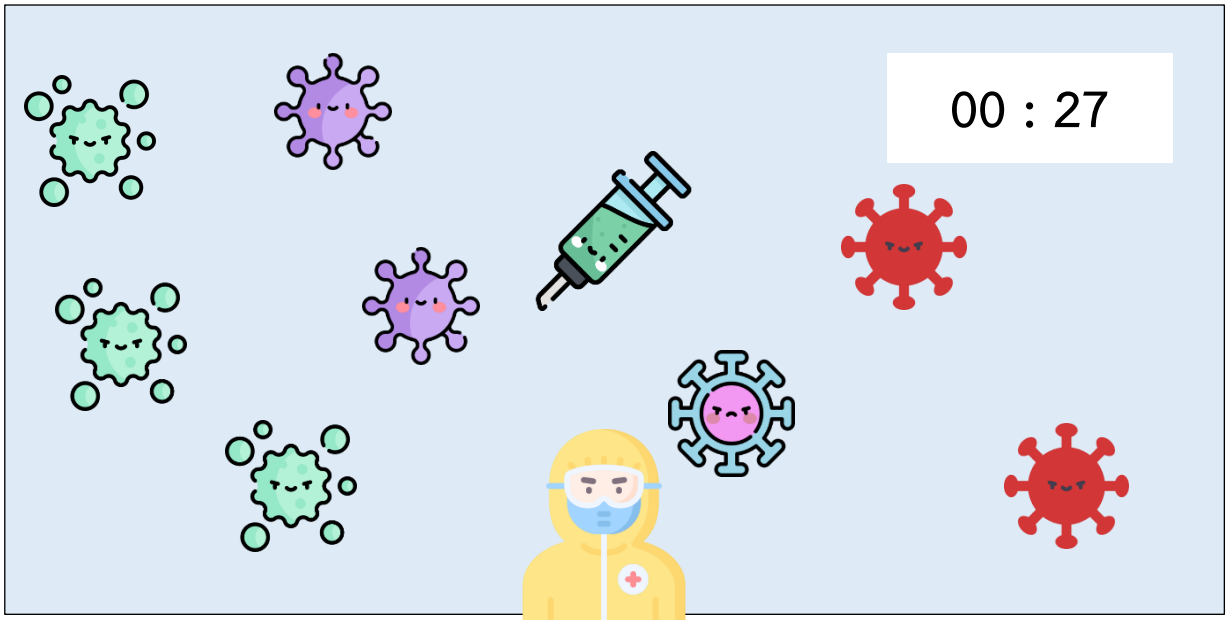
DELTA

3) 5 items of the best vaccine



- Game screen





4.Schedule of creating this game in 1 month (Start 26/09/2021)

1st (26 Sep – 17 Oct 2021)	>> Learn the necessary thing in JAVA programming and draft class/method in my game entirely.
2nd (18 Oct – 31 Oct 2021)	>> Gather the necessary image and COVID-19 information to insert in my game.
3rd (1 Nov – 17 Nov 2021)	>> Revise the thing I will do in this game and start to write this JAVA game programming seriously.
4th (18 Nov – 19 Nov 2021)	>> Check all game programming and try to play this game for proof my game programming works fine.

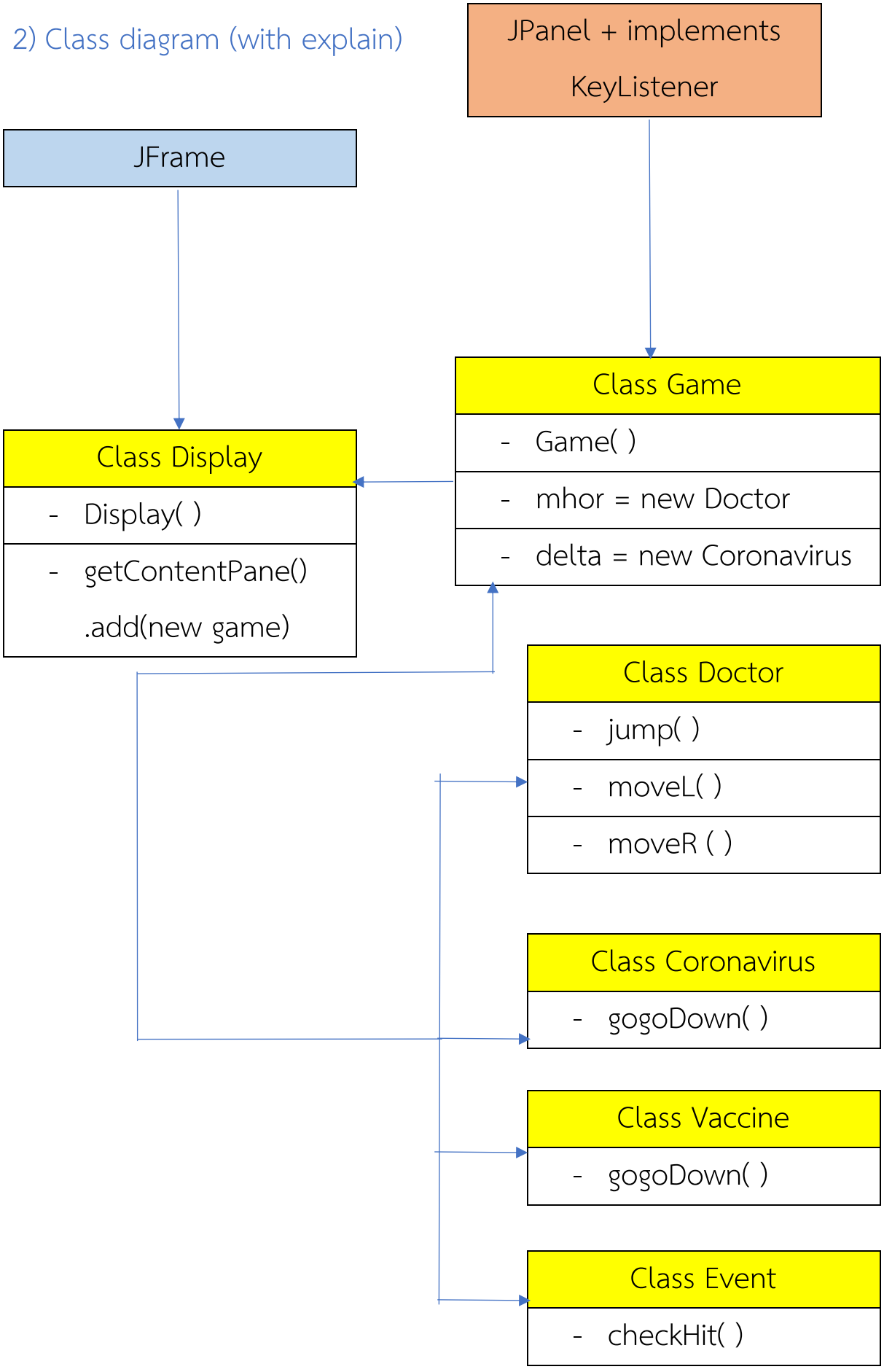
Unit 2 : Developing part

1) Synopsis and how to play

- Synopsis : Now, we are in covid pandemic. Many doctors devote themself to treat and protect a lot of patients. Let's us help the doctor avoid catching coronavirus that it overspreads all around our country. We can help the doctor by moving left and right to keep away from coronavirus and jump to get vaccine. If we help him to not touch coronavirus, the more we help him then the vaccine doctor and us will get. Everyone will get the best vaccine and the doctor will not get the risk anymore. Together, we'll do extraordinary things to save us all from COVID-19 !

- How to play : The player must use finger to press the keyboard on left/right button to moving away from many coronaviruses and press spacebar or up button to jumping for get many vaccines. If the player touch coronaviruses too much, Their HP (Health Point) will lose continuously. But if the player come back to touch vaccines, their HP will increase higher too. This game concept is collecting the number of the Health Point continuously and collecting the number of all vaccines that the developer sets time approximately 30 seconds to let the players play. When this game is end, all results will show, and it will disappear when the players close this program. So, the game will be set up and it doesn't remember the last result.

2) Class diagram (with explain)



3) Development model of Application / Applet

4) Describes the program sections as follows

Constructor

```
public class Doctor { //3.Crete doctor class
    public int DoctorSize, X ,Y ; //StoreLocation of x,y and DoctorSize
    public Doctor(int X, int Y, int DoctorSize){
        this.DoctorSize = DoctorSize ;
        this.X = X ;
        this.Y = Y ; //4.Call class doctor in game
    }

    public int superJumpHeight = 100; //7. Make doctor jump and go to implement keylistener in Game
    public void jump(JPanel game1){ //Don't forget to sent argument game in class Game
        this.Y = Y - superJumpHeight ;
        //11.Jump and how dogtor on air for second?-->500 millisecond
        game1.repaint(); //when dortor jump, he will be repainted
        Timer timer = new Timer(500,new ActionListener() { //500 millisecond that do in line 29-33
            @Override
            public void actionPerformed(ActionEvent e) {
              Y = Y + superJumpHeight ;
              game1.repaint();
            }
        });
        timer.setRepeats(false); // Oherwise it will be loop
        timer.start();

    }
```

```
public class Coronavirus { //Don't forget to create crn object in Game.
    public int x,y,width,height,speed ;
    private int x_Start,y_Start ;
    public Coronavirus(int x,int y,int w,int h,int speed,JPanel game1){
        this.x = x ;
        this.y = y ;
        this.width = w ;
        this.height = h ;
        this.speed = speed ;
        gogoDown(game1);
        this.x_Start = x ;
        this.y_Start = y ;
    }
```

```
public class Vaccine {
    public int x,y,width,height,speed ;
    private int x_Start,y_Start ;
    public Vaccine(int x,int y,int w,int h,int speed,JPanel game1){
        this.x = x ;
        this.y = y ;
        this.width = w ;
        this.height = h ;
        this.speed = speed ;
        gogoDown(game1);
        this.x_Start = x ;
        this.y_Start = y ;
    }
```

Inheritance

```
public class Game extends JPanel implements KeyListener{

    public Game(){
        this.setBounds(0,0,1000,600); //Set window size at x,y location and size,size
        this.setFocusable(true); //Set event after that
        this.setLayout(null);// Not define layout because I can define it later.
        this.addKeyListener(this); //9. Add parameter (this or this clas because IPM)

    }
```

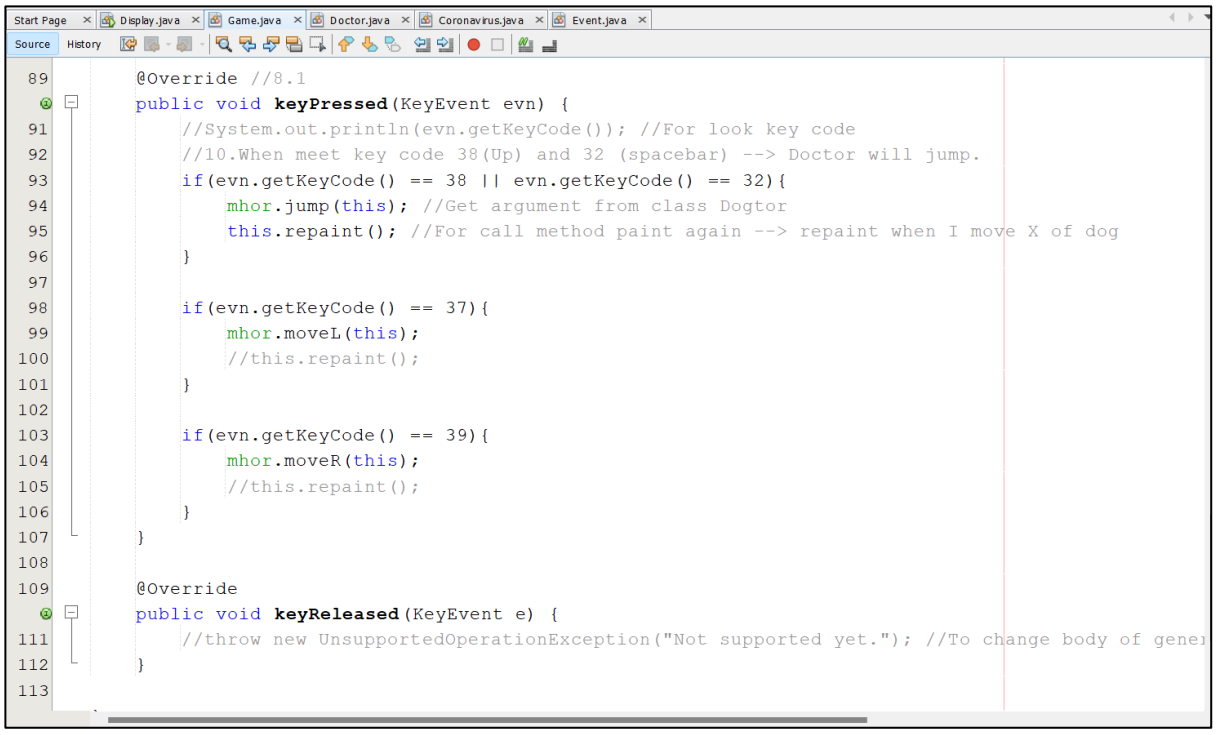
```
public class Display extends JFrame { //1.Create JFrame
    public Display(){
        super("Avoid Catching Coronavirus !");
        this.setSize(1000,600);
        this.setLocation(300, 200);
        this.setVisible(true);
        this.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        //2.Put class game in class display
        this.getContentPane().setLayout(null);
        this.getContentPane().add(new Game());
```

5) GUI Interface

- Describe part of GUI, GUI structure with component

- Describe Event handling in interface

- Describe the important algorithm in program



Start Page | Display.java | Game.java | Doctor.java | Coronavirus.java | Event.java

Source | History

```
89      @Override //8.1
90      public void keyPressed(KeyEvent evn) {
91          //System.out.println(evn.getKeyCode()); //For look key code
92          //10.When meet key code 38(Up) and 32 (spacebar) --> Doctor will jump.
93          if(evn.getKeyCode() == 38 || evn.getKeyCode() == 32){
94              mhor.jump(this); //Get argument from class Dogtor
95              this.repaint(); //For call method paint again --> repaint when I move X of dog
96          }
97
98          if(evn.getKeyCode() == 37){
99              mhor.moveL(this);
100             //this.repaint();
101         }
102
103         if(evn.getKeyCode() == 39){
104             mhor.moveR(this);
105             //this.repaint();
106         }
107     }
108
109     @Override
110     public void keyReleased(KeyEvent e) {
111         //throw new UnsupportedOperationException("Not supported yet."); //To change body of gene
112     }
113
```

Unit : 3 Summary

1) Problems encountered during development

- Could not put image because I draw rectangle to mark location that represents doctor object and corona object but when I came back to edit it better, it always error.

- Could not do checkHit( ) in y-axis. It was still having mistakes of logic in this game.

2) Highlights of my unique program

- It shows all result of the numbers of hit and the numbers of vaccines that make motivation when the players come to play and collect new vaccines more and more in the next turn.

3) Additional suggestion

- No addition suggestion because the teacher arranges every contents in OOP sequentially that is proper for once of week.