

# VG100 — Introduction to Engineering

## Project 1 Report (Team 7)

### Rubric

- Game Design (10 pts)
- Code Quality (50 pts)
- Readme (15 pts)
- Personal work (20 pts)

## 1 Game Design

Not included in this report.

## 2 Code Quality

Your total score of this part is 41/50.

All related information is listed below:

1 point(s) **deduction**, duplicate code, in file [Calculate.elm](#), lines 7-21.

```
7  ballLeftCoordinate : Model -> (Int, Int)
8  ballLeftCoordinate model =
9      (floor ((model.ball_y - 8)/4), floor ((model.ball_x - 3)/4))
10
11 ballRightCoordinate : Model -> (Int, Int)
12 ballRightCoordinate model =
13     (floor ((model.ball_y - 8)/4), floor ((model.ball_x - 1)/4))
14
15 ballUpCoordinate : Model -> (Int, Int)
16 ballUpCoordinate model =
17     (floor ((model.ball_y - 9)/4), floor ((model.ball_x - 2)/4))
18
19 ballDownCoordinate : Model -> (Int, Int)
20 ballDownCoordinate model =
21     (floor ((model.ball_y - 7)/4), floor ((model.ball_x - 2)/4))
```

1 point(s) **deduction**, usage of unnecessary if, in file [Check.elm](#), lines 14-89.

```
14 cHit: Float -> Float -> Bool --
15 cHit x y =
16     if (x - 42) ^ 2 + (y - 30) ^ 2 <= 6 ^ 2 then True
17     else False
18
19 cHitB: Float -> Float -> Float -> Float -> Bool --
20 cHitB x y a b =
21     if (x - a) ^ 2 + (y - b) ^ 2 <= 6 ^ 2 && (x - a) ^ 2 + (y - b) ^ 2 >= 4 ^ 2 then True
22     else False
23
...
```

```

80 cUpLeaf model =
81   if (List.member (ballUpCoordinate model) model.blueLeaves) && (List.member (ballUpCoordinate model) model.emptyLeaves
      ↳ == False)
82   then True
83   else False
84
85 cDownLeaf : Model -> Bool
86 cDownLeaf model =
87   if (List.member (ballDownCoordinate model) model.blueLeaves) && (List.member (ballDownCoordinate model)
      ↳ model.emptyLeaves == False)
88   then True
89   else False

```

1 point(s) **deduction**, duplicate code, in file [Check.elm](#), lines 43-89.

```

43 cLeftPillar: Model -> Float -> Bool
44 cLeftPillar model t =
45   if t <= 3
46   then True
47   else False
48
49 cRightPillar: Model -> Float -> Bool
50 cRightPillar model t =
51   if t >= 81
52   then True
53
54 ...
55
80 cUpLeaf model =
81   if (List.member (ballUpCoordinate model) model.blueLeaves) && (List.member (ballUpCoordinate model) model.emptyLeaves
      ↳ == False)
82   then True
83   else False
84
85 cDownLeaf : Model -> Bool
86 cDownLeaf model =
87   if (List.member (ballDownCoordinate model) model.blueLeaves) && (List.member (ballDownCoordinate model)
      ↳ model.emptyLeaves == False)
88   then True
89   else False

```

1 point(s) **deduction**, duplicate code, in file [Dashboard.elm](#), lines 70-79.

```

70 t1 = image[x ((String.fromFloat (stx+wid*0))+ "%"), y"1%",width "2%", height"2%",xlinkHref trait8]] -- +1 +1( )
71 t2 = image[x ((String.fromFloat (stx+wid*1))+ "%"), y"1%",width "2%", height"2%",xlinkHref trait11]] -- -10( )
72 t3 = image[x ((String.fromFloat (stx+wid*2))+ "%"), y"1%",width "2%", height"2%",xlinkHref trait13]] -- ( )
73 t4 = image[x ((String.fromFloat (stx+wid*3))+ "%"), y"1%",width "2%", height"2%",xlinkHref trait2]] -- ( )
74 t5 = image[x ((String.fromFloat (stx+wid*4))+ "%"), y"1%",width "2%", height"2%",xlinkHref trait10]] -- ( )
75 t6 = image[x ((String.fromFloat (stx+wid*5))+ "%"), y"1%",width "2%", height"2%",xlinkHref trait6]] -- ( )
76 t7 = image[x ((String.fromFloat (stx+wid*6))+ "%"), y"1%",width "2%", height"2%",xlinkHref trait1]] -- +2( )
77 t8 = image[x ((String.fromFloat (stx+wid*7))+ "%"), y"1%",width "2%", height"2%",xlinkHref trait12]] -- ( )
78 t9 = image[x ((String.fromFloat (stx+wid*8))+ "%"), y"1%",width "2%", height"2%",xlinkHref trait4]] -- ( )
79 t10 = image[x ((String.fromFloat (stx+wid*9))+ "%"), y"1%",width "2%", height"2%",xlinkHref trait5]] -- ( )

```

1 point(s) **deduction**, duplicate code, in file [Help.elm](#), lines 51-234.

```

51 renderButtonLeft: Html Msg
52 renderButtonLeft =
53     button
54         [ style "background" "#02020299"
55           , style "color" "#8acce7"
56           , style "cursor" "pointer"
57           , style "font-family" "Chalkduster"
58           , style "font-size" "40px"
59           , style "font-weight" "300"
60           , style "height" "90px"
61
62     ...
63
64     , style "display" "block"
65     , style "height" "30px"
66     , style "left" "900px"
67     , style "top" "730px"
68     , style "width" "200px"
69     , style "border" "0"
70     , onClick (ChangeDifficulty Nightmare)
71     , title "Do not try it."
72   ]
73   [ text "Nightmare" ]

```

1 point(s) **deduction**, hard coded, in file [Model.elm](#), lines 170-175.

```

170     (0, 4), (1, 4), (2, 4), (3, 4), (4, 4), (5, 4), (6, 4), (7, 4), (8, 4), (9, 4), (10, 4),
171     (0, 5), (1, 5), (2, 5), (3, 5), (4, 5), (5, 5), (6, 5), (7, 5), (8, 5), (9, 5), (10, 5),
172     (0, 6), (1, 6), (2, 6), (3, 6), (4, 6), (5, 6), (6, 6), (7, 6), (8, 6), (9, 6), (10, 6),
173     (0, 13), (1, 13), (2, 13), (3, 13), (4, 13), (5, 13), (6, 13), (7, 13), (8, 13), (9, 13), (10, 13),
174     (0, 14), (1, 14), (2, 14), (3, 14), (4, 14), (5, 14), (6, 14), (7, 14), (8, 14), (9, 14), (10, 14),
175     (0, 15), (1, 15), (2, 15), (3, 15), (4, 15), (5, 15), (6, 15), (7, 15), (8, 15), (9, 15), (10, 15)

```

1 point(s) **deduction**, too long function and hard coded, in file [Update.elm](#), lines 40-183.

```

40 update: Message.Msg -> Model -> (Model, Cmd Msg)
41 update msg model =
42     case msg of
43         KeyChanged isDown key ->
44             ({ model | keys = updateKeys isDown key model.keys }, Cmd.none)
45
46         TimeDelta dt ->
47             (updateTime model 0.06, Cmd.none) --*   Msg   Cmd Msg
48
49         DrawBrick time -> (model, Random.generate NewBrick brickGenerator) --*   cmd !
50
51     ...
52
53     Normal -> 1
54     Hard -> 2
55     Nightmare -> 3
56
57     in
58     ({model|
59         difficulty = difficulty
60         , life = life
61         , max_life = max_life
62         , skills_cost = [25*expN,27*expN,29*expN,31*expN,33*expN,35*expN,40*expN,45*expN,50*expN,100*expN]
63     },Cmd.none)
183

```

1 point(s) **deduction**, usage of unnecessary if and continuous if and else if, in file [Update.elm](#), lines 227-272.

```
227     ski_3_eff = if getAt 2 model.skills_ok == Just True then True else False
228     ski_4_eff = if getAt 3 model.skills_ok == Just True then True else False
229     ski_5_eff = if getAt 4 model.skills_ok == Just True then True else False
230     ski_6_eff = if getAt 5 model.skills_ok == Just True then True else False
231     ski_7_eff = if getAt 6 model.skills_ok == Just True then True else False
232     ski_8_eff = if getAt 7 model.skills_ok == Just True then True else False
233     ski_9_eff = if getAt 8 model.skills_ok == Just True then True else False
234     ski_10_eff = if getAt 9 model.skills_ok == Just True then True else False
235
236
...
263     if getAt 0 skills_ok /= (getAt 0 model.skills_ok) then exp0 - Dashboard.fromJust(getAt 0 skills_cost)
264     else if getAt 1 skills_ok /= (getAt 1 model.skills_ok) then exp0 - Dashboard.fromJust(getAt 1 skills_cost)
265     else if getAt 2 skills_ok /= (getAt 2 model.skills_ok) then exp0 - Dashboard.fromJust(getAt 2 skills_cost)
266     else if getAt 3 skills_ok /= (getAt 3 model.skills_ok) then exp0 - Dashboard.fromJust(getAt 3 skills_cost)
267     else if getAt 4 skills_ok /= (getAt 4 model.skills_ok) then exp0 - Dashboard.fromJust(getAt 4 skills_cost)
268     else if getAt 5 skills_ok /= (getAt 5 model.skills_ok) then exp0 - Dashboard.fromJust(getAt 5 skills_cost)
269     else if getAt 6 skills_ok /= (getAt 6 model.skills_ok) then exp0 - Dashboard.fromJust(getAt 6 skills_cost)
270     else if getAt 7 skills_ok /= (getAt 7 model.skills_ok) then exp0 - Dashboard.fromJust(getAt 7 skills_cost)
271     else if getAt 8 skills_ok /= (getAt 8 model.skills_ok) then exp0 - Dashboard.fromJust(getAt 8 skills_cost)
272     else if getAt 9 skills_ok /= (getAt 9 model.skills_ok) then exp0 - Dashboard.fromJust(getAt 9 skills_cost)
```

2 point(s) **deduction**, too long function and bad usage of let in, in file [Update.elm](#), lines 223-539.

```
223 updateTime: Model -> Float -> Model
224 updateTime model dt =
225     let
226         --*
227         ski_3_eff = if getAt 2 model.skills_ok == Just True then True else False
228         ski_4_eff = if getAt 3 model.skills_ok == Just True then True else False
229         ski_5_eff = if getAt 4 model.skills_ok == Just True then True else False
230         ski_6_eff = if getAt 5 model.skills_ok == Just True then True else False
231         ski_7_eff = if getAt 6 model.skills_ok == Just True then True else False
232         ski_8_eff = if getAt 7 model.skills_ok == Just True then True else False
233
...
530         , max_life = max_life
531         , state = state
532         , combo = combo
533         , exp = exp
534         , leaf = leaf
535         , skills_ok = skills_ok
536         , skills_cost = skills_cost
537         , se = se
538     }
```

1 point(s) **deduction**, duplicate code and too long function and some code should be replaced by functions, in file [View.elm](#), lines 20-80.

```
20 view model =
21
```

```

22     [
23       div [ style "backgroundColor" "#1d1d1d"]
24       [svg
25         [ viewBox "0 0 400 400" ]
26         (interweave (renderDashboard model) (interweave (renderRowBrick (Point 2 8) model 4 4 10 19)
27           [
28             renderInterface (Point 0 0) 100 65 background
29             , renderInterface (Point 2 0) 80 60 interface
30
31             ...
32
33             , renderInterface (Point 72 8) 10 10 upright
34             , renderInterface (Point 72 42) 10 10 downright
35             , hype
36           ]
37         ))
38       ]
39     , div [][renderMusic model]
40     , div [][renderSE model]
41     , div [][renderGameButton model]
42   ]

```

2 point(s) **bonus**, some documentations found.

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### **3 Readme**

Not included in this report.

### **4 Personal work**

Not included in this report.