

Project: Algorithms and Art

Computer Science Principles 2022-2023

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Phase 1: Brainstorming

I'm not a very creative person, but when I do have ideas, it's likely that I am reminded of something by the topic. I decided to go with a simple Mario design for this project because it is one of the first things that can come to my head, it is feasible, and it gives a good result. There's a lot that I could have made but this is the only idea that seemed to really pop out to me.

Phase 2: Planning

I managed to have most of my project done before writing this document, but there is still some planning to do.

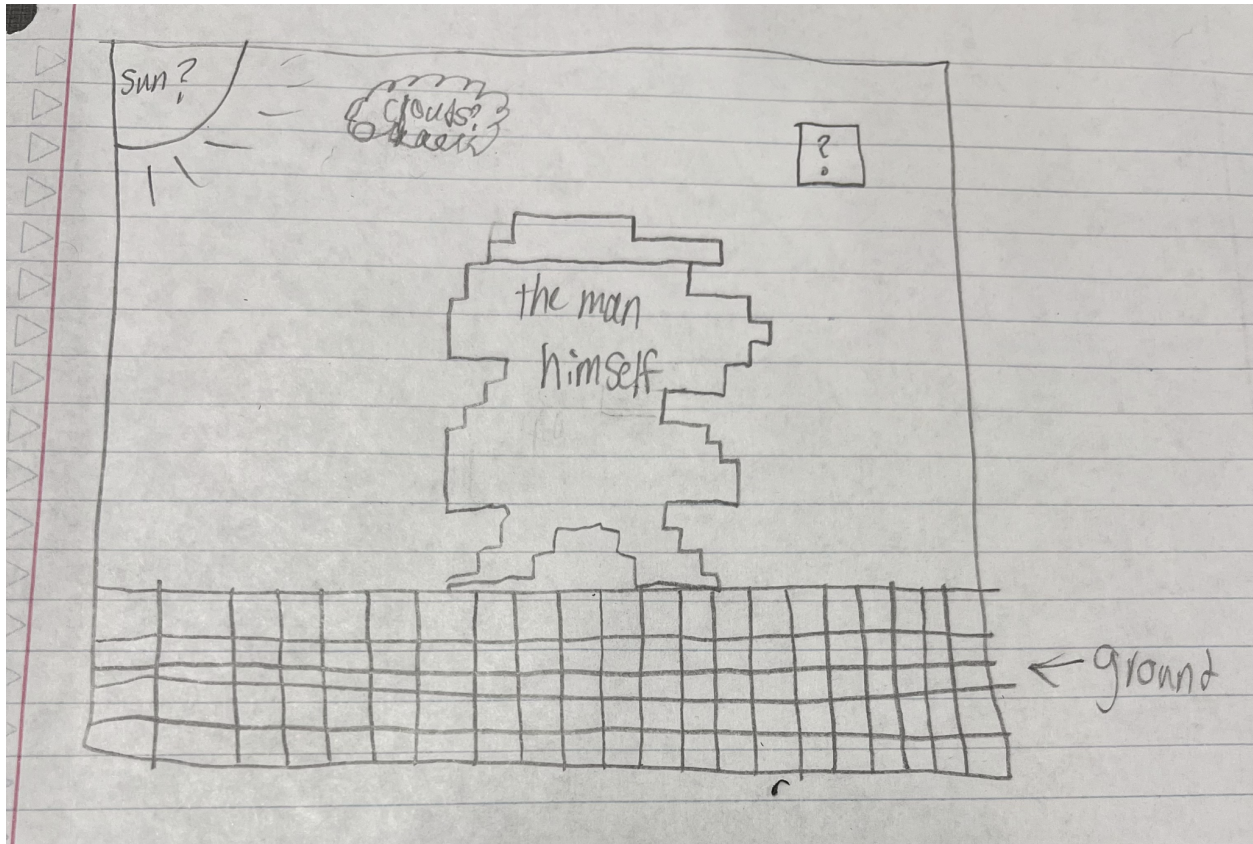
Day 4 (October 13th): I plan to finish up the shoes which should take a good 5 minutes. After that, I want to look more into detail, such as adding a sky, and maybe perhaps reduce the size of my drawing (as of currently, it takes up the whole canvas). I could add more details, such as a pipe or a sun.

Day 5 (October 14th): Today I plan to finish up my ground from yesterday. I had a couple issues with image sizing and scaling the ground to fit perfectly.

Day 6 (October 17th): This assignment now requires other shapes and sizes, however Mario is more so a pixelated drawing. I want to think of some other stuff I could add.

Day 7 (October 18th): I want to finish the sun with the rays coming out the sides.

Design Plan



Progress

Day 1 (October 10th): I finished Mario's hat and his entire head today. I want to start on the overalls and shirt tomorrow and maybe even get a finish.

Day 2 (October 11th): I finished Mario's body today. I want at least the legs done the next day.

Day 3 (October 12th): I spent most of the day working on and organizing this document. Normal progress starts again tomorrow.

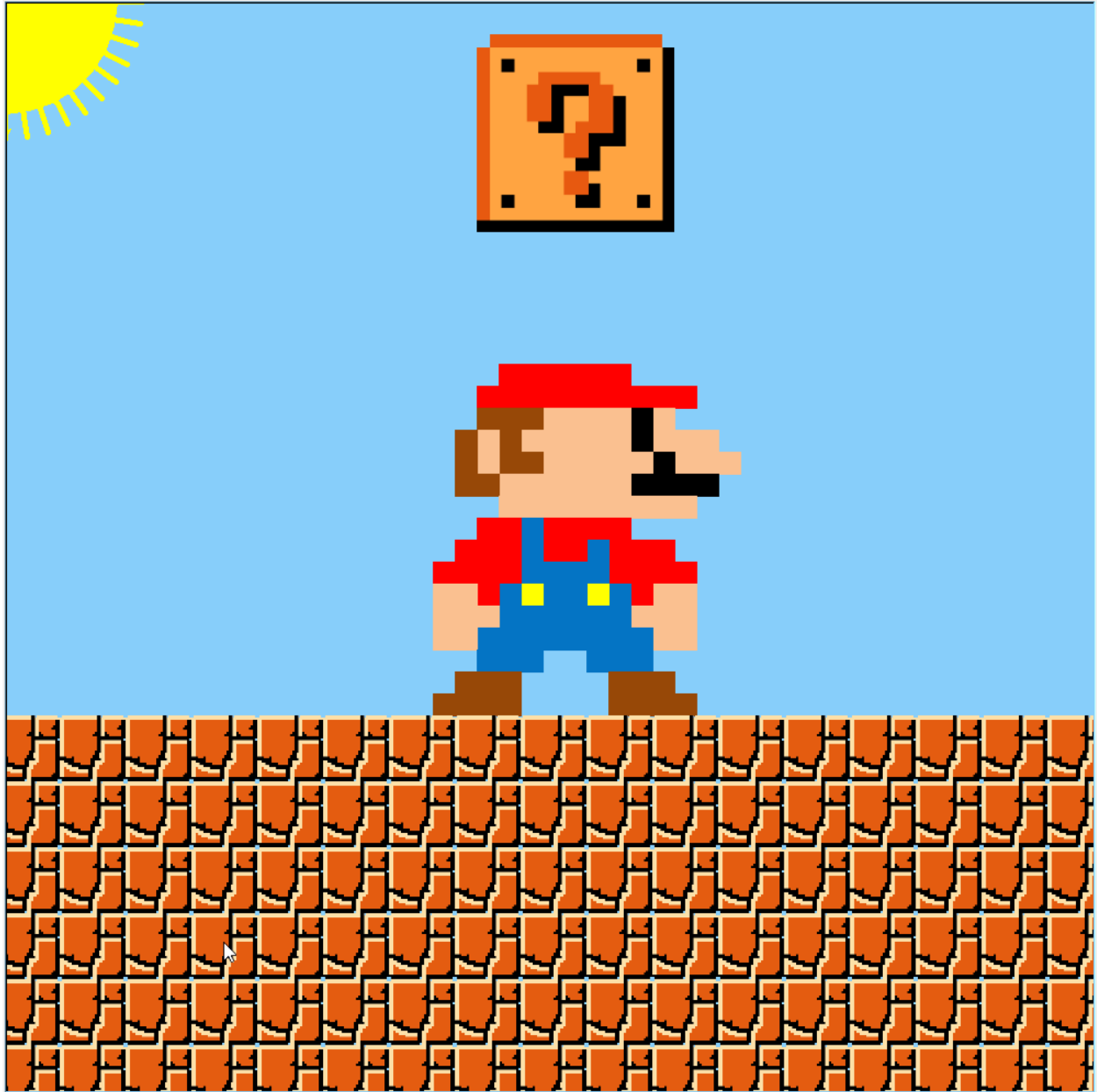
Day 4 (October 13th): I finished Mario's boots as well as starting on the ground.

Day 5 (October 14th): The ground has been fixed. Perhaps clouds would look a little good on this set?

Day 6 (October 17th): I didn't do a lot today because I was still thinking about what I wanted to add and how to interpret it. I have an idea for a sun which I will add tomorrow.

Day 7 (October 18th): I finished the sun thus being the final part of my project. Clouds were a good idea originally but I don't like how they would look if I did add them.

Finished Product



Code Screenshots

```
247 stamp.pd()
248 stamp.pencolor('#ffff00')
249 stamp.fillcolor("#ffff00")
250 stamp.begin_fill()
251 stamp.pensize(5)
252 stamp.turtlesize(1)
253 stamp.circle(100)
254 stamp.end_fill()
255
256 head = 360
257
258 for angles in range(11):
259     stamp.pu()
260     stamp.goto(-500, 500)
261     stamp.setheading(head)
262     stamp.pd()
263     stamp.forward(125)
264     head -= 9
265
266 wn.mainloop()
```

**utilization of loop
for the sun**

(more below..)

```

119a.py > ...
163     stamp.forward(20)
164     stamp.stamp()
165
166     stamp.goto(140, yax)
167     yax -= 20
168
169     for step in range(12):
170         if step >= 3 and step <= 8:
171             # overalls
172             stamp.color("#0474c4")
173         else:
174             # hands
175             stamp.color("#fac090")
176         stamp.forward(20)
177         stamp.stamp()
178
179     stamp.goto(140, yax)
180     yax -= 20
181
182     for step in range(12):
183         if step <= 1 or step >= 10:
184             # hands
185             stamp.color("#fac090")
186         else:
187             # overalls
188             stamp.color("#0474c4")
189         stamp.forward(20)
190         stamp.stamp()
191
192     stamp.goto(100, yax)
193     yax -= 20
194     stamp.color("#0474c4")
195
196     for step in range(8):
197         if step == 3 or step == 4:
198             stamp.forward(20)

```

**conditional
statements**

(more below..)


```

119a.py > ...
210 |         stamp.forward(20)
211 |     else:
212 |         stamp.forward(20)
213 |         stamp.stamp()
214
215 stamp.goto(140, yax)
216 yax -= 40
217 stamp.color("#974807")
218
219 for step in range(12):
220 |     if step >= 4 and step <= 7:
221 |         stamp.forward(20)
222 |     else:
223 |         stamp.forward(20)
224 |         stamp.stamp()
225
226 # ground
227 stamp.goto(1500, yax)
228 yax -= 60
229 wn.addshape("groundblock.gif")
230 stamp.shape("groundblock.gif")
231
232 for step in range(500):
233 |     stamp.forward(60)
234 |     stamp.stamp()
235 |     if step % 75 == 0 and step != 0:
236 |         stamp.goto(1500, yax)
237 |         yax -= 60
238
239 wn.addshape("questionblock.gif")
240 stamp.shape("questionblock.gif")
241 stamp.goto(20, 380)
242
243 stamp.stamp()
244
245 stamp.shape("classic")

```

**i had no animation,
however all types of
movement were
required for this
project**