

```
Pseudo_Code.java
1 PSEUDO CODE
2 by Josh Pang
3
4 Preface // Read Me
5
6 "Welcome to Pseudo Code. In this novella, we'll be sharing small, relaxing tales which sneak in byte
    sized bits of
7 computer science. Enjoy!"
8
9 // Chapter 1: The Flowers Of The Garden
10 // An Introduction to Loops
11
12 The Flowers Of The Garden live life in a cycle. They recycle.
13 Every day The Flowers play in sunlight, then dream in moonlight, then play in sunlight, then dream in
    moonlight.
14 This cycle recycles forever. The Earth loves to recycle.
15 Every season The Flowers grow big, then grow small, then grow big, then grow small.
16 This cycle recycles forever. The Earth loves to recycle.
17 The Flowers of the Garden live life in a cycle. They recycle.
18
19 In computer science, we call this a loop.
20
21 Moral Of The Story: Loops are how we recycle in computer science. Computers love to loop.
22
23 // Chapter 2: Gardener Caroline
24 // Why we need structure
25
26 Caroline tends her garden lovingly. She cares for each little flower individually, "Hello little
    flower, how
27 are you this morning?" She smiles as she waters the thirsty plants.
```

```
Pseudo_Code.java
28 Caroline is quite a good gardener. She has ever so many flowers! In fact, Caroline is getting
29 overwhelmed by
30 her success.
31 She needs to organize how she cares for her flowers, so she can give each one the care and love they
32 deserve.
33 "Oh little flowers, what will I do?"
34 That night, Caroline finds the solution she needs in a dream.
35
36 Moral Of The Story: Gardener Caroline needs "data structures" to manage the plethora of flowers in
37 her garden.
38 In computer science, we need data structures to manage the plethora of binary code in our programs.
39
40 // Chapter 3: Gardener Caroline Dreams A Solution
41 // An Introduction to Declaring and Instantiating Variables
42
43 Caroline awakens to the first light of dawn.
44 Every morning Caroline does a few basic things the same way. Essentially, her morning routine is a
45 loop.
46 The first thing she does every morning is yawn. After a good yawn, she stretches a nice long stretch.
47 Caroline greets her friend Mr. Sun the same way every morning, "Good morning, Mr. Sun!"
48 Caroline has greeted each day every day in this way all her life. This is her World Famous Caroline
49 Morning Loop!
50 "I wonder how The Flowers greet the new day?"
51 Excited from her dream last night, Caroline jumps out of bed and runs to her friend Old Mr. Computer.
52 She needs Mr.
53 Computer to remember the events of her dream because sometimes she forgets. Old Mr. Computer is like
54 Old Faithful
55 when it comes to remembering things for our friend Gardener Caroline.
56
57 In her dream, Caroline found herself upset in the middle of her garden. Suddenly, all the flowers
```

gathered around her in a protective circle.

"Carolyn, why are you upset? You give us so much water and food and love, what can we do to lift your spirit?"

Carolyn replied, "Little flowers, I am worried about how I can take care of all of you... How can I love all of you equally?"

The Flowers said, "Well, maybe if you knew all of our names, you would be able to account for all of us."

Carolyn was very happy that The Flowers were speaking to her!!!

A Blue Flower introduced himself, "My name is Mr. Blue. I'm ever so grateful for all of your help!"

A Yellow Flower introduced herself, "My name is Ms. Yellow. Carolyn, you make me glow whenever I see you!"

Finally, A Green Flower introduced himself, "My name is Mr. Green. Carolyn, perhaps you could tell old Mr. Computer about our names when you wake up?"

While chatting with Old Mr. Computer, Carolyn thought of a way to organize all the names of the Flowers of the Garden. Ever since she was little, Carolyn had tied colored strings around her fingers to keep track of important things she needed to remember. She tied a blue string around her first finger for Mr. Blue, a yellow string around her second finger for Ms. Yellow, and a green string around her third finger for Mr. Green.

Remembering how she used to remember things, Carolyn asked Old Mr. Computer to remember the names of the flowers.

```
72    like this:  
73  
74    Blue String = "Mr. Blue"  
75    Yellow String = "Ms. Yellow"  
76    Green String = "Mr. Green"  
77  
78    Caroline simply cannot remember the last time she was this happy. The Flowers all introduced  
79    themselves to her!!!  
80  
81    And they said they love everything about how she cares for them. She can hardly contain her glee.  
82    as well. We call these names for things variables. We call introducing names "declaring."  
83    "Value" we call "initialization." But lets not get too technical, shall we?  
84  
85    // Chapter 4: Caroline Finds Joy In Old Mr. Computer's Jargon  
86    // Correct String Syntax In Java  
87  
88    Caroline, being a wonderful gardener, is used to interacting with bugs. Bees provide sweet music as  
89    they buzz around  
90  
91    Old Mr. Computer usually has a few bugs crawling around his circuits. Since Caroline was used to bugs  
92    in her garden,  
93    and they were minor, she let them be. Like bugs in her garden, the bugs crawling around in Old Mr.  
94    useful in mysterious ways. The bugs caused Mr. Computer to remember her words like this:
```

```
95 String Blue = "Mr. Blue";
96 String Yellow = "Ms. Yellow";
97 String Green = "Mr. Green";
98
99 When Caroline asked Old Mr. Computer if he could change her language back to normal, he simply shook
100 his head in defeat.
101 Caroline did not know why the some of the words got topsy-turvy, nor why a few friendly semicolons
102 appeared, but so
103 to do is look!"  
104 Caroline loves Old Mr. Computer unconditionally. They have known each other for all their lives. She
105 has made
106 getting to know his Ling - called Java - a creative project. Old Mr. Computer needs Caroline to help
107 him
108 communicate. He has many important things to say. Caroline never leaves a friend in need!
109 Little did Caroline know, she was writing her first computer program in the modern programming
110 language of Java.
111 Java is the mother tongue of Old Mr. Computer speaks. English, which is the mother tongue of Gardner
112 second language. Many programming languages are similar in nature to Java. Java is the
113 most popular programming language in computer science as of this writing. Knowing a bit of Java means
114 knowing a bit
115 Moral of The Story: Circa 2015, programming syntax is highly technical, idiosyncratic, and
unforgiving. There is no
of computer science in general.
```

116 getting around it. **Carolíne** found joy in **Java** jargon by forgiving the rigidity of **Old Mr. Computer**.

Can You?

118 // Chapter 5: Carolíne Chats With Old Mr. Computer
119 // Indent Style In Java and Introduction to Conditionals

120 Every Wednesday for as long as she could remember, **Carolíne** remembered to water **Mr. Green**.
121 On one unusual Wednesday, **Carolíne** plumb forgot.

122 Thursday morning, she found **Mr. Green** wilting with woe.
123 "My dear little flower! Why do you wilt with woes?"

124 "Oh **Carolíne**, you did not visit me yesterday. I've had nothing to drink, and I'm parched with thirst.
125 I'm exhausted, and too dry to even cry."

126 At that very moment, **Carolíne** resolved herself to never again forget to feed any one of **The Flowers**.
127 She went home
128 that night to think with her whole entire brain in order to find a solution. **Naturally**, she found one.

129 **Many** years ago, **Carolíne** wore braces to straighten her teeth. **Today**, **Carolíne** has the most beautiful
130 smile for miles
131 around.
132 **Carolíne** was reminded of this when she was thinking about how to straighten out her problem. She
133 realized **Old Mr.**
134 **Carolíne** could organize her thoughts with opening {"} and closing "}" braces like this:

135 Computer could organize her thoughts with opening {"} and closing "}" braces like this:
136 {
137 E-mail from Old Mr. Computer:
138 }
139 "Hi Carolíne! Don't forget to feed The Flowers!"

140 "Your friend, Cornelius Computer."

Line 116, Column 1

Java

Tab Size: 4

```
141 }  
142 Caroline, the very happy gardener that she was, wrote a schedule with the help of her friend Old Mr.  
143 Computer.  
144 Schedule For My Little Flowers by Caroline:  
145 {  
146 If today is Monday, then water "Mr. Blue".  
147 If today is Tuesday, then water "Ms. Yellow".  
148 If today is Wednesday, then water "Ms. Green".  
149 If today is Thursday, then read a book to The Flowers.  
150 If today is Friday, then sing a song to The Flowers.  
151 If today is Saturday, then water "Mr. Green".  
152 }  
153 Caroline found the braces to be very useful in organizing her ideas. She started to use them any time  
she worked with  
154 Old Mr. Computer. It helped to keep both of them organized. Like the fence which protects The Garden,  
155 she worked with  
156 braces protect her ideas.  
157 Moral of The Story: Everyone needs to structure their ideas. There are a limited number of  
conventions to begin and  
158 end a thought. In English, we use capital letters and periods. In Java, we use opening and closing  
braces.  
159 Chapter 6: Old Mr. Computer Finally Shares His Feelings  
160 // Algorithmic Pseudo Code For A Java Program  
161 // Chapter 6: Old Mr. Computer Finally Shares His Feelings  
162 // Algorithmic Pseudo Code For A Java Program  
163 Old Mr. Computer was feeling a little buggy as usual.  
164 One morning, Caroline was chatting with Mr. Computer and found out he had confused a few things. Being  
165
```

the kind and patient person she is, and given that his mistakes were harmless, she was happy the way they were. In fact, Old Mr. Computer is endearing to her heart because of his quirky glitches. With an air of humor, Caroline imagined it is her sacred duty to correct his communication. She does not take her job seriously, and solely focuses on this way, everyone wins.

Having fun.

Mr. Computer had kept the braces like Caroline asked. However, shame-faced, Mr. Computer admitted he accidentally added a few things. It looked like this:

```
166    patient person she is, and given that his mistakes were harmless, she was happy the way they were. In
167    fact, Old Mr.
168    Computer is endearing to her heart because of his quirky glitches. With an air of humor, Caroline
169    imagined it is her
170    sacred duty to correct his communication. She does not take her job seriously, and solely focuses on
171    this way, everyone wins.
172    added a few things. It looked like this:
173    accidentally
174    Schedule_For_My_Little_Flowers(Monday, Tuesday, Wednesday, Thursday, Friday)
175    {
176        while(In The Garden)
177        {
178            if(Today == Monday)
179            {
180                Waterer(Mr. Blue);
181            }
182            else If(Today == Tuesday)
183            {
184                Waterer(Ms. Yellow);
185            }
186            else If(Today == Wednesday)
187            {
188                Waterer(Mr. Green);
189            }
190        }
191    }
192 }
```

```
191 }  
192 Read(A Book);  
193 {  
194 Else()  
195 {  
196 Sing(A Song);  
197 }  
198 }  
199 }  
200 }  
201 Gathering her energy, Caroline slowly and gradually asked old Mr. Computer a few questions about the  
202 made.  
203 "Dear Mr. Computer, you are perfect and awesome. But I cannot fathom this new language."  
204 "Can you explain how you transformed my schedule from English to Java?"  
205 "Well Caroline, if you think about it, Java and English are not that far apart. There are just a few  
206 grammatical differences, but essentially a sentence in English is a sentence in Java. If you can understand this,  
207 you'll go far."  
208 "That method. Let me show you how I think."  
209 And so, Mr. Computer began his long-winded monologue without interruption, as is customary on Planet  
210 Computer.  
211 // Comments are denoted by the use of two forward slashes //  
212 // Class Caroline_Waters_The_Flowers  
213 {  
214 Class Caroline_Waters_The_Flowers  
215 {
```

```
// A class defines a program in Java. Let's say a program is like an novella.  
216  
String Blue = "Mr. Blue";  
217  
String Yellow = "Ms. Yellow";  
218  
String Green = "Mr. Green";  
219  
// Conventionally variables are declared at the beginning of a program. These are the strings we  
220  
// saw from // above. We would need a variable for everything, but this is Pseudo Code and meant to be taken  
221  
// lightly.  
222  
// As long as you get the picture, that's all that matters. Or said more technically, semantics  
223  
// trumps syntax.  
224  
// Scope is worth mentioning here. Variables declared independently are called "global," and are  
225  
// immutable.  
226  
// parent function.  
227  
Function Water(A Flower)  
228  
    Get(Water From Well);  
229  
    Carry(Water To Garden);  
230  
    Return Pour(Water On Said Flower);  
231  
}  
232  
// In a computer program, everything needs to be exactly explicitly defined. We might not think  
233  
// the act of watering a flower as a function we perform, but to the tabula rasa computer, it  
234  
// just such precise instructions. Though this is almost universally tedious to regular folks, I  
235  
// think we forget that as children we needed to be taught everything from how to hold a  
236  
toothbrush  
this  
// to how to saute a flame. We sublimate so many "functions" we forget that reality requires
```



```
260  Return Water(Ms. Yellow); // Here, the variable that changes is who to water.
261
262  Else If(Today == Wednesday) // Etc.
263  {
264    Return Water(Mr. Green);
265  }
266  Else If(Today == Thursday)
267  {
268    Return Read(A Book);
269  }
270  Else()
271  {
272    Return Sing(A Song);
273  }
274  }
275  // That seems fairly intuitive. Caroline taught us about braces, semicolons, all the
276  // symbols of Java. The rest reads a bit like a book, don't you think? If Today is
277  // Water Mr. Blue. Simple. If you cannot see this, we have a problem. Seek technical
278  // support
279  // from a teacher.
280  // Closes the "While in the garden" loop
281  } // Closes the "Schedule for my little flowers" function.
282  // Closes the class "Caroline waters the flowers."
283  // Epilogue: Caroline Travels To Planet Computer
284  // The Need For Immersion
285
286  Caroline sighs to herself. "Mr. Computer, I doubt I will ever learn your language. We're just too
```

287 | sadness. I feel powerless. I do not see any option but to surrender myself to this seeming forever
| fatigued.
288 | miscalculation."

289 | Mr. Computer takes a minute to compute an answer. "Caroline, do you believe in magic?"
290 | An odd question coming from a computer.
291 | Caroline hesitantly replies, "Of course I do. Doesn't everybody?"
292 | Mr. Computer smiles, "Caroline, I think I know how we can bridge this gap. You're outgoing and
| friendly, at least
293 | that's what the flowers tell me. Go find some people you enjoy spending time with who know
| Computer-rese. I think
294 | finding the right community is key, everything else fits under magic. And do give yourself lots of
| time. Be patient.

295 | Magician takes time. What is it that they say in Santa Cruz? "The Goddess is alive and magic is afoot!"
296 | Please remember you don't need to be the Shakespeare of computer programming either. Just basic
| computer literacy will do in this day and age. I know you can do it, my calculations are always
297 | correct. Trust me."

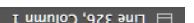
298 | Caroline tilts her head thoughtfully, "Alright Mr. Computer, I've got some calculations to do."

299 | After a few weeks to digest the solemn words of Mr. Computer, Caroline decided to work with an
| awesome computer scientist during her weekends. After all, her passion is for farming. This computer science
300 | business is just a
301 | science tutor during weekends. After all, her passion is for farming. This computer science
302 | favor to help Old Mr. Computer communicate. Well, that is one way to put it.

303 // Author's Endnote

304 || "In the night, say it right, say it all / "
305 || "You either got it, or you don't, you either stand, or you fall." |||
306 || Say It Right, Nelly Furtado
307 || 308

310 I think the problem **Caroline** faces in **Pseudocode** is completely legitimate. I face it daily. I did
311 join a computer community, and learned a lot. I also found the community excessively competitive, aggressive, and
312 Yang and no Yin. Programming in an environment where mistakes are abundant, but each mistake inches
313 you closer to shame: this adds insult to injury. More work needs to be done on the engineering side to allow for "good enough"
314 programming. People speak algorithmically, not programmatically. They lang. **Natural Language*** is*
315 **Pseudocode**.
316 However, regular people do need to be a bit more organized in their speech – i.e. more artificial/
317 formal language and less natural/informal language – in order to be responsible with increasing powerfull
318 otherwise we will be a society like in **Wall-E**. So, both sides need to extend an olive branch.
319
320 I would like to see a genre of literature like **Pseudocode** which introduce computer science
321 gradually, and thoroughly. **Pseudo Code** is my modest, best foot forward contribution to such an
322 effort. I am reminded of my other passion, **Sanskrit**. How remarkable words like "Yoga", "Guru", "Karma", and "Chakra" have
323 powerfully into our daily life. However, "Return Statement", "Indent Styles", "Resolution", and "
324 not in regular vocabulary by my estimation. As a budding **Sanskrit** teacher, I know that because a few
325 are in our popular culture, **Sanskrit** teaching is the richer for it. The lack of a few basic computer
science terms

315 **Artificial Language** *is* **Pure Code**. If this is embraced, computer science teaching will benefit.
316 However, regular people do need to be a bit more organized in their speech – i.e. more artificial/
317 formal language – in order to be responsible with increasing powerfull
318 **Otherwise** we will be a society like in **Wall-E**. So, both sides need to extend an olive branch.
319 technology.
320 I would like to see a genre of literature like **Pseudo Code** which introduce computer science
321 gradually, and thoroughly. **Pseudo Code** is my modest, best foot forward contribution to such an
322 of my other passion, **Sanskrit**. How remarkable words like "Yoga", "Guru", "Karma", and "Chakra" have
323 powerfully into our daily life. However, "Return Statement", "Indent Styles", "Recursion", and "
324 made their way
325 not in regular vocabulary by my estimation. As a budding **Sanskrit** teacher, I know that because a few
326 **Sanskrit** words
327 in our popular culture means computer science teaching is the poorer for it. And, it is a relatively
328 **Ultimately**, the best incentive is fun. What could be more fun than bridging the gap between two worlds
329 of the bridge between men and women... Maybe fun is the techbridge between computers and people.
330 that. Words to that effect.
331 **Something** like
332 **-Josh**  Pang
333