Swift optional variables and random generator

在第4行，宣告整數變數value，在宣告時，不設定初始值，請在型態Int之後緊接符號“?”，表示該變數為optional，因內容未定義，表示為nil，在執行時必須特別處理．第5行使用函數Int將字串char轉換為整數，如果該字串包含非數字字元，則轉換失敗，轉換結果為未定義．

In line 4, declare the integer variable value. When declaring, do not set the initial value. Please follow the type Int with the symbol "?" to indicate that the variable is optional. Because the content is undefined, it is expressed as nil. During execution Special handling is required. Line 5 uses the function Int to convert the char string into an integer. If the string contains non-numeric characters, the conversion fails and the conversion result is undefined.

```
1  import UIKit
2
3  var char: String = "12"
4  var
5  value = Int(char)
```

"12"
nil
12

經第3行的宣告指令指定後，字串char之內容包含非數字字元，執行第5行時，將導致整數轉換失敗，使得變數value未定義．承接上題，變數value為optional(可選擇的)，即使未定義，仍然合法．請在第6行，檢查value是否未定義，如果條件成立，執行訊息列印

After the declaration instruction in line 3 is specified, the content of the string char contains non-numeric characters. When line 5 is executed, the integer conversion will fail, leaving the variable value undefined. Continuing from the previous question, the variable value is optional. Even if it is not defined, it is still legal. Please check whether value is undefined on line 6. If the condition is met, execute message printing.

```
1  import UIKit
2
3  var char: String = "12s"
4  var
5  value = Int(char)
6  if                    {
7      print("    variable value is undefined")
8  }
```

本題請填

"12...
nil
nil
"...

```
variable value is undefined
```

本題字串變數char的內容均為數字字元，第5行Int函數轉換成功字串char，變數value的內容為整數．變數value在第5行的指定內容為Int轉換結果，有未定義的可能，須設定為optional(可選擇的)變數，才能通過編譯．請在第6行設定條件指令的檢查條件，並在第9行，列印變數value的展開(unwrap)內容，展開時，請記得在變數value後加驚嘆號“!”．

The contents of the string variable char in this question are all numeric characters. The Int function in line 5 successfully converts the string char, and the content of the variable value is an integer. The specified content of the variable value in line 5 is the Int conversion result. It may be undefined and must be set to an optional (optional) variable to pass compilation. Please set the check condition of the conditional instruction on line 6, and print the expansion (unwrap) content of the variable value on line 9. When expanding, please remember to add an exclamation point "!" after the variable value.

```
1  import UIKit
2
3  var char: String = "123"                                    "12...
4  var value: Int?                                             nil
5  value = Int(char)                                           123
6  if                    {
7      print("    variable value is undefined")
8  } else{
9      print(          )                                       "12...
10 }
```

請在第2行，將常數cardNumber宣告為整數Int，並使用Int.random的方法隨機設定初始值，請使用函數參數in指定1到52為該方法產生隨機整數之範圍

Please declare the constant cardNumber as an integer Int in line 2, and use the Int.random method to randomly set the initial value. Please use the function parameter in to specify the range of 1 to 52 for this method to generate a random integer.

```
1  import UIKit
2  let cardNumber =                                                    34
```

本題宣告變數cardNumbers為包含1到52的整數陣列，請使用該陣列的shuffled()方法將陣列內容隨機排列

This question declares the variable cardNumbers to be an integer array containing 1 to 52. Please use the shuffled() method of the array to randomly arrange the array contents.

```
1  import UIKit
2
3  let cardNumbers = 1...52
4  var card =
```

41
{lowe...
[42,...

常數geneCharSet為字串陣列，內容包含基因序列的4個字元．請將geneChar宣告為optional字串變數，並以字串陣列geneCharSet的randomElement()方法隨機產生字元，設定geneChar的初始值

The constant geneCharSet is a string array whose content contains 4 characters of the gene sequence. Please declare geneChar as an optional string variable, and use the randomElement() method of the string array geneCharSet to randomly generate characters and set the initial value of geneChar.

```
1  import UIKit
2
3  let geneCharSet = ["A", "T", "C", "G"]                    ["A",...
4  var geneChar:                                             "G"
```

承接上一題，geneChar為optional字串變數，並以字串陣列geneCharSet的randomElement()方法隨機設定初始值，在geneChar變數內容展開(unwrap)時，有可能未被定義．本題以條件指令，判斷geneChar是否不等於nil，當條件成立後，才會執行print指令，印出變數geneChar的展開內容，展開geneChar時，請記得在該變數後加驚嘆號“!”．

Continuing from the previous question, geneChar is an optional string variable, and the initial value is randomly set using the randomElement() method of the string array geneCharSet. When the content of the geneChar variable is expanded (unwrap), it may not be defined. This question uses a conditional instruction to determine whether geneChar is not equal to nil. When the condition is established, the print instruction will be executed to print out the expanded content of the variable geneChar. When expanding geneChar, please remember to add an exclamation point "!" after the variable.

```
1  import UIKit
2
3  let geneCharSet = ["A", "T", "C", "G"]                    ["A",...
4  var geneChar:                                             "T"
5  if                                  {
6      print(                          )                     "T\n"
}
```

請填這兩行

本題隨機產生包含10個基因字元的字串變數geneString，並列印．第6行中for的索引變數，並未在迴圈中使用，以符號“_”替代，請以1...10為迴圈索引範圍完成for指令設計，在第7行使用字串陣列geneCharSet的randomElement()方法隨機產生字元，在第8行，以條件指令判斷geneChar是否不等於nil．

This question randomly generates a string variable geneString containing 10 gene characters and prints it. The index variable of for in line 6 is not used in the loop and is replaced by the symbol "_". Please use 1...10 as the loop index range to complete the for instruction design and use the string array geneCharSet in line 7. The randomElement() method randomly generates characters. On line 8, a conditional instruction is used to determine whether geneChar is not equal to nil.

```
1  import UIKit
2
3  let geneCharSet = ["A", "T", "C", "G"]                    ["A...
4  var geneChar: String?                                     nil
5  var geneString: String = ""                               ""
6  for _ [redacted]{
7      geneChar = [redacted]                                 (10...
8      if [redacted]{
9          geneString += geneChar!                           (10...
10     }
11 }
12 print("      "+geneString)                                 "...
```

陣列charSet有兩個字串，其中一個包含非數字字元．第4行使用randomElement()的方法，隨機選定一個字串，代入字串變數char中．請在第5行將num宣告為optional整數，並使用Int函數將展開後的char內容轉換為整數，請記得在char之後緊接符號”！”．如果隨機產生的char包含非字元字串，則num未定義．請在第6行使用條件指令，檢查num是否等於nil，當條件不成立時才執行num!的列印．

The array charSet has two strings, one of which contains non-numeric characters. Line 4 uses the randomElement() method to randomly select a string and substitute it into the string variable char. Please declare num as an optional integer in line 5, and use the Int function to convert the expanded char content into an integer. Please remember to follow the symbol "!" after the char. If the randomly generated char contains non-character strings, num is undefined. Please use the conditional instruction on line 6 to check whether num is equal to nil. When the condition is not true, the printing of num! will be executed.

```
1  import UIKit
2
3  let charSet = ["1","T"]                                  ["1…
4  var char: String? = charSet.randomElement()              "1"
5  var num: Int                                             1
6  if                {
7      print("num does not exist")
8  }     else {
9      print(num!)                                          "1\n"
10 }
```

請在第5行將num宣告為optional整數，並使用Int函數將展開後的char內容轉換為整數，請記得在char之後緊接符號”！”．如果隨機產生的char包含非字元字串，則num未定義．請在第6行使用條件指令，使用let宣告常數c，並將num的內容指定到c，如果num有內容，指定成功並執行第7行，否則執行第9行．

Please declare num as an optional integer in line 5, and use the Int function to convert the expanded char content into an integer. Please remember to follow the symbol "!" after the char. If the randomly generated char contains non-character strings, num is undefined. Please use the conditional instruction on line 6, use let to declare the constant c, and assign the content of num to c. If num has content, the specification is successful and line 7 is executed. Otherwise, line 9 is executed.

```
1  import UIKit
2
3  let charSet = ["1","T"]                                    ["1…
4  var char: String? = charSet.randomElement()                "1"
5  var num: Int                                               1
6  if                                {
7      print(c)                                               "1\n"
8  }   else {
9      print("char does not exist")
10 }
```

pointSet為整數陣列常數，代表骰子六個面的點數．請在第4行將tenPoints宣告為整數陣列，並初始化為空陣列；並在第6行條件指令中，以let宣告常數point，使用陣列pointSet的randomElement()方法隨機產生一整數，指定為常數point的內容，指定成功後就能執行第7行．請在第7行將point的內容附加在陣列tenPoints之後．

pointSet is an integer array constant, representing the number of points on the six sides of the dice. Please declare tenPoints as an integer array in line 4 and initialize it as an empty array; and in the conditional instruction in line 6, declare the constant point with let, use the randomElement() method of the array pointSet to randomly generate an integer, specify it as the constant point Content, line 7 can be executed after the specification is successful. Please append the content of point to the array tenPoints in line 7.

```
1  import UIKit
2
3  let pointSet = 1...6                                    {lo...
4  var tenPoints                                           []
5  for _ in 1...10{
6      if                                                  {
7          
8      }                                                   (10...
9  }
10 print(tenPoints)                                        "[3,...
```

承接上題，tenPoints代表隨機產生的骰子點數．請在第11行，以num為列舉變數，使用for指令列舉整數陣列tenPoints的內容；在第12行以條件指令判斷num是否等於1，並在第13行更新countOne的計數個數

Continuing from the previous question, tenPoints represents the randomly generated dice points. Please use num as the enumeration variable in line 11, and use the for instruction to enumerate the contents of the integer array tenPoints; use the conditional instruction in line 12 to determine whether num is equal to 1, and update the count number of countOne in line 13.

```
1  import UIKit
2
3  let pointSet = 1...6                                          {lo...
4  var tenPoints                                                 []
5  for _ in 1...10{
6      if                                                        ){
7
8      }
9  }
10 var countOne = 0                                              0
11 for                                                           {
12     if                                                        {
13         countOne
14     }
15 }
16 print(countOne)                                               "1\n"
```

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