1) *You do NOT have to use every row. If you want more rows, feel free to expand the table.*

|  |  |  |
| --- | --- | --- |
| 00 | 901 |  |
| 01 | 211 |  |
| 02 | 806 |  |
| 03 | 510 |  |
| 04 | 902 |  |
| 05 | 000 |  |
| 06 | 509 |  |
| 07 | 902 |  |
| 08 | 000 |  |
| 09 | 1 | *Data Storage* |
| 10 | 0 | *Data Storage* |
| 11 | 100 | *Data Storage* |

2) *Fill in the value column*

|  |  |  |
| --- | --- | --- |
| Address | **Value** | Assembly |
| 00 | **901** | START INP |
| 01 | **308** | STA X |
| 02 | **209** | SUB SECRET |
| 03 | **805** | BRP EXIT |
| 04 | **600** | BRA START |
| 05 | **509** | EXIT LDA SECRET |
| 06 | **902** | OUT |
| 07 | **000** | HLT |
| 08 | **0** | X DAT 0 |
| 09 | **10** | SECRET DAT 10 |

3)

1. A higher-level programming language is much more succinct in that it can describe many machine instructions using a single operation. They’re easier for programmers to read because they are very abstracted.
2. A compiler converts higher level code into machine code, possibly with a variety of optimizations and shortcuts going on “under the hood”.

4)

1. C# is a general-purpose object oriented language which is most commonly used for desktop applications, web apps, and game development.
2. It was developed around 2000 by Microsoft, and was chiefly designed by Anders Hejlsberg.

|  |
| --- |
| *//Hello World in C#*  *class HelloWorld*  *{*  *static void Main()*  *{*  *System.Console.WriteLine("Hello, World!");*  *}*  *}* |

5) (12)0 (2)1 (2)0 (4)1 (2)0 (4)1 (2)0 (4)1 (2)0 (2)1

6) **QRSTUVTUVTUV**

7)

|  |
| --- |
|  |

**Codes:**

|  |  |
| --- | --- |
| **Symbol** | Code |
| **A** | 110 |
| **B** | 101 |
| **C** | 100 |
| **D** | 0 |
| **E** | 111 |

8) Data such as images can be further compressed using the “leave-it-out” trick, which entails reducing or outright removing some of the details in order to save on storage space. This is possible because the compressed image will look roughly similar to the human eye, whereas removing data from something like text would be clearly noticeable and might change the meaning of the information itself.

9)

|  |  |
| --- | --- |
|  | *var userName = "";*  *var userMovie = "";*  *var userColor = "";*  *onEvent("button\_nameEntry", "click", function( ) {*  *console.log("button\_nameEntry clicked!");*    *userName = getText("text\_input\_nameEntry");*    *setText("text\_area\_welcome", "Hi "+userName+", it's nice to meet you!\n\nI'm not telling you my name.\n\nAnyway, what's your favorite movie?");*  *setScreen("screen\_welcome");*  *});*  *onEvent("button\_movieEntry", "click", function( ) {*  *console.log("button\_movieEntry clicked!");*    *userMovie = getText("text\_input\_movieEntry");*    *if (userMovie.toLowerCase()=="toy story") {*  *setText("text\_area\_movie", "Oh, "+userMovie+" is my favorite movie, too!\n\nI wonder what else we have in common?\n\nWhat's your favorite color?");*  *} else {*  *setText("text\_area\_movie", "Oh, "+userMovie+" is okay... I guess...\n\nMy favorite movie is Toy Story!\n\nWell, what's your favorite color?");*  *}*    *setScreen("screen\_movie");*  *});*  *onEvent("button\_colorEntry", "click", function( ) {*  *console.log("button\_colorEntry clicked!");*    *userColor = getText("text\_input\_colorEntry");*    *setText("text\_area\_color", "OMG!!! I LOVE "+userColor.toUpperCase()+" SO MUCH!!!\n\nLIKE, WAY TOO MUCH!!!\n\nHowever, this conversation is over.");*    *setScreen("screen\_color");*  *});* |

10)

|  |  |
| --- | --- |
|  | *var resultDie1 = 0;*  *var resultDie2 = 0;*  *var totalRolls = 0;*  *var totalPairs = 0;*  *onEvent("button\_rollDice", "click", function( ) {*  *console.log("button\_rollDie clicked!");*    *resultDie1 = randomNumber(1,6);*  *resultDie2 = randomNumber(1,6);*    *if (resultDie1 == resultDie2)*  *{*  *totalPairs++;*  *}*    *totalRolls++;*    *setText("label\_die1", resultDie1);*  *setText("label\_die2", resultDie2);*  *setText("label\_totalPairsValue", totalPairs);*  *});* |