**The Comparer**

In this game you will be given 2 numbers and you will have to choose the bigger/smaller one (it will specify which one it wants in the question). There will be 2 levels and you have to get 3 points to pass each level.

**Version 1**

**Data dictionary**

* userName
  + Holds the name of the user, so
* userScore
  + Holds that score of the user
* level
  + The level the user is on
* numberOne
  + The first number in the question
* numberTwo
  + The second number in the question
* biggerOrSmaller
  + Whether the question wants you to answer with the bigger number or the smaller number
* userAnswer
  + What the user answers with.

**Outcomes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Computer answer (expected result)** | **User says** | **Results of user** | **Outcome to score** |
| numberOne > numberTwo | numberOne > numberTwo | Correct | +1 |
| numberTwo > numberOne | Incorrect | +0 |
| numberTwo > numberOne | numberTwo > numberOne | Correct | +1 |
| numberOne > numberTwo | Incorrect | +0 |
| numberOne < numberTwo | numberOne < numberTwo | Correct | +1 |
| numberTwo < numberOne | Incorrect | +0 |
| numberTwo < numberOne | numberOne < numberTwo | Correct | +1 |
| numberTwo < numberOne | Incorrect | +0 |

**Game flow steps**

1. Ask for user’s name
2. Give user instructions
3. Sets level to 1 and score to 0
4. Generates question (2 numbers and bigger or smaller)
5. Asks user the question
6. Record users answer
   1. If user correct - display correct message, and add +1 to score
   2. If user incorrect - display incorrect message, and move on to different question
7. When userScore is 3 on level 1, move to level 2 and reset score to 0
8. When userScore is 3 and on level 2, finish game, and tell user.

**Version 2**

**Data Dictionary**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Type** | **What does it hold?** | **Possibilities answers** | **Initial Value** |
| userName | String | The name of the user | Any | - |
| userScore | Integer | The user’s score | ‘0’, ‘1’, ‘2’, ‘3’ | 0 |
| level | Integer | The level the user is on | ‘1’, ‘2’ | 1 |
| numberOne | Integer | Random number generated by the computer | On level ‘1’: 1 to 100  On level ‘2’: 1 to 1000 | - |
| numberTwo | Integer | Random number generated by the computer | On level ‘1’: 1 to 100  On level ‘2’: 1 to 1000 | - |
| biggerOrSmaller | Integer | Decides whether the the question will be asking for the bigger number, or smaller number. | ‘1’ - meaning smaller  ‘2’ - meaning bigger | - |
| userAnswer | String | This is the answer the user inputs | Either numberOne or numberTwo | - |

**Possible Outcomes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **biggerOrSmaller is asking for** | **Computer answer (expected result)** | **User says** | **User Results** | **Outcome to score** |
| Bigger | numberOne > numberTwo | numberOne > numberTwo | Correct | +1 |
| numberTwo > numberOne | Incorrect | +0 |
| numberTwo > numberOne | numberTwo > numberOne | Correct | +1 |
| numberOne > numberTwo | Incorrect | +0 |
| Smaller | numberOne < numberTwo | numberOne < numberTwo | Correct | +1 |
| numberTwo < numberOne | Incorrect | +0 |
| numberTwo < numberOne | numberOne < numberTwo | Correct | +1 |
| numberTwo < numberOne | Incorrect | +0 |

**Game flow steps**

1. Ask for user’s name
2. Alerts user instructions
3. Sets level = 1 and score = 0
4. Generates question (2 numbers and biggerOrSmaller)
5. Prompts user the question.
6. Record users answer under variable userAnswer
   1. If user correct - display correct message, and add +1 to userScore
   2. If user incorrect - display incorrect message, and move on to different question
7. When userScore = 3 on level = 1, move to level = 2 and reset userScore = 0
8. When userScore = 3 and on level = 2, finish game, and alert the user

**Version 3**

**Data Dictionary**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name (var)** | **Type** | **What does it hold?** | **Possibilities answers** | **Initial Value** |
| userName | String | The name of the user | Any | - |
| userScore | Integer | The user’s score | ‘0’, ‘1’, ‘2’, ‘3’ | 0 |
| level | Integer | The level the user is on | ‘1’, ‘2’ | 1 |
| numberOne | Integer | Random number generated by the computer | On level ‘1’: 1 to 100  On level ‘2’: 1 to 1000 | - |
| numberTwo | Integer | Random number generated by the computer | On level ‘1’: 1 to 100  On level ‘2’: 1 to 1000 | - |
| biggerOrSmaller | Integer | Decides whether the the question will be asking for the bigger number, or smaller number. | ‘1’ - meaning smaller  ‘2’ - meaning bigger | - |
| userAnswer | String | This is the answer the user inputs | Either numberOne or numberTwo | - |

**Possible Outcomes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **biggerOrSmaller is asking for** | **Computer answer (expected result)** | **User says** | **User Results** | **Outcome to score** |
| Bigger number | numberOne > numberTwo | numberOne | Correct | +1 |
| numberTwo | Incorrect | +0 |
| numberTwo > numberOne | numberTwo | Correct | +1 |
| numberOne | Incorrect | +0 |
| Smaller number | numberOne < numberTwo | numberOne | Correct | +1 |
| numberTwo | Incorrect | +0 |
| numberTwo < numberOne | numberOne | Correct | +1 |
| numberTwo | Incorrect | +0 |

**Game flow steps**

1. Ask for user’s name (for further notice in the game, so you can personalise the game for the user)
2. Alerts user about the instructions
3. Sets level = 1 and score = 0
4. Generates question (2 random numbers and whether the question wants the biggerOrSmaller number)
5. Prompts user the question using the variables above.
6. Record users answer under variable userAnswer, and checks to see if user is correct.
   1. If user correct - display correct message, and add +1 to userScore
   2. If user incorrect - display incorrect message, and move on to different question
7. When userScore = 3 on level = 1, move to level = 2 and reset userScore = 0
8. When userScore = 3 and on level = 2, finish game, and alert the user

**Version 4**

**Data Dictionary**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name (var)** | **Type** | **What does it hold?** | **Possibilities answers** | **Initial Value** |
| userName | String | The name of the user | Any | - |
| userScore | Integer | The user’s score | ‘0’, ‘1’, ‘2’, ‘3’ | 0 |
| level | Integer | The level the user is on | ‘1’, ‘2’ | 1 |
| numberOne | Integer | Random number generated by the computer | On level ‘1’: 1 to 100  On level ‘2’: 1 to 1000 | - |
| numberTwo | Integer | Random number generated by the computer | On level ‘1’: 1 to 100  On level ‘2’: 1 to 1000 | - |
| biggerOrSmaller | Integer | Decides whether the the question will be asking for the bigger number, or smaller number. | ‘1’ - meaning smaller  ‘2’ - meaning bigger | - |
| userAnswer | String | This is the answer the user inputs | Either numberOne or numberTwo | - |

**Possible Outcomes**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **biggerOrSmaller is asking for** | **Question shows that** | **Computer answer (expected result)** | **User says** | **User Results** | **Outcome to score** |
| Bigger number | numberOne > numberTwo | numberOne | numberOne | Correct | +1 |
| numberTwo | Incorrect | +0 |
| numberTwo > numberOne | numberTwo | numberTwo | Correct | +1 |
| numberOne | Incorrect | +0 |
| Smaller number | numberOne < numberTwo | numberOne | numberOne | Correct | +1 |
| numberTwo | Incorrect | +0 |
| numberTwo < numberOne | numberTwo | numberOne | Correct | +1 |
| numberTwo | Incorrect | +0 |

**Game flow steps**

1. Ask for user’s name (for further notice in the game, so you can personalise the game for the user)
2. Alerts user about the instructions
3. Sets level = 1 and score = 0
4. Generates variables in the question
   1. Random number for numberOne
   2. Random number for numberOne
   3. Whether the question wants the biggerOrSmaller number
5. Prompts user the question using the variables above.
6. Record users answer under variable userAnswer, and checks to see if user is correct.
   1. If user correct - display correct message, and add +1 to userScore
   2. If user incorrect - display incorrect message, and move on to different question
7. Repeat steps until the user has 3 points
8. When userScore = 3 on level = 1, move to level = 2 and reset userScore = 0
9. Generates variables in the question
   1. Random number for numberOne
   2. Random number for numberOne
   3. Whether the question wants the biggerOrSmaller number
10. Prompts user the question using the variables above.
11. Record users answer under variable userAnswer, and checks to see if user is correct.
    1. If user correct - display correct message, and add +1 to userScore
    2. If user incorrect - display incorrect message, and move on to different question
12. Repeat steps until the user has 3 points
13. When userScore = 3 and on level = 2, and alert the user that they have finished the game
14. Finish game

**Version 5**

**Data Dictionary**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name (var)** | **Type** | **What does it hold?** | **Possibilities answers** | **Initial Value** |
| userName | String | The name of the user (for further notice in the game, so you can personalise the game for the user) | Any | - |
| userScore | Integer | The user’s score | ‘0’, ‘1’, ‘2’, ‘3’ | 0 |
| level | Integer | The level the user is on | ‘1’, ‘2’ | 1 |
| numberOne | Integer | Random number generated by the computer | On level ‘1’: 1 to 100  On level ‘2’: 1 to 1000 | - |
| numberTwo | Integer | Random number generated by the computer | On level ‘1’: 1 to 100  On level ‘2’: 1 to 1000 | - |
| biggerOrSmaller | Integer | Decides whether the the question will be asking for the bigger number, or smaller number. | ‘1’ - meaning smaller  ‘2’ - meaning bigger | - |
| userAnswer | String | This is the answer the user inputs | Either numberOne or numberTwo | - |

**Possible Outcomes**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **biggerOrSmaller is asking for** | **Question shows that** | **Computer answer (expected result)** | **User says** | **User Results** | **Outcome to score** |
| Bigger number | numberOne > numberTwo | numberOne | numberOne | Correct | +1 |
| numberTwo | Incorrect | +0 |
| numberTwo > numberOne | numberTwo | numberTwo | Correct | +1 |
| numberOne | Incorrect | +0 |
| Smaller number | numberOne < numberTwo | numberOne | numberOne | Correct | +1 |
| numberTwo | Incorrect | +0 |
| numberTwo < numberOne | numberTwo | numberOne | Correct | +1 |
| numberTwo | Incorrect | +0 |

**Game flow steps**

1. Start
2. Get user’s name (Say: “What is your name?”)
3. Tell user the instructions (Say: "Welcome to Comparer (input the userName) this game you will be given 2 numbers and you will have to choose the bigger/smaller one, this will be it will specify in the question. There will be 2 levels and you have to get 3 points to pass a level. Good luck and I hope you have fun!")
4. Set userScore = 0 & level = 1
5. Repeat whenever (userscore < 3)
   1. If level = 1
      1. Generate a random number for numberOne ≤ 100, random number for numberTwo ≤ 100 and make sure they aren’t the same
   2. If level = 2
      1. Generate a random number for numberOne ≤ 1000, random number for numberTwo ≤ 1000 and make sure they aren’t the same
   3. Selects a random variable out of bigger or smaller
   4. Prompts user the question using the variables above.
   5. Record users answer under variable userAnswer, and checks to see if user is correct.
      1. If user userAnswer = correct
         1. (Say: ”Yay (input the userName)! You got it right")
         2. userScore + 1
      2. If user incorrect
         1. (Say: “Sorry (input the userName)! You got it wrong, try another set of numbers")
         2. No change to userScore
         3. Move on to different question
   6. Tell user about their progress (Say: "Progress: Your score is: (input the userScore). You're on level: (input the level))
6. When userScore = 3 & level = 1,
   1. Set level = 2 & userScore = 0
   2. (Say: "Congratulations (input the userName)! You're on level 2 now! The numbers will be a little bit larger now and your score will be reset to zero.")
   3. Go back and repeat the above loop.
7. When userScore = 3 & level = 2,
   1. (Say: “"Congratulations (input the userName)! You have completed Comparer! YAY!")
8. Finish

**Version 6**

**Data Dictionary**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name (var)** | **Type** | **What does it hold?** | **Possibilities answers** | **Initial Value** |
| userName | String | The name of the user (for further notice in the game, so you can personalise the game for the user) | Any | - |
| userScore | Integer | The user’s score | ‘0’, ‘1’, ‘2’, ‘3’ | 0 |
| level | Integer | The level the user is on | ‘1’, ‘2’ | 1 |
| numberOne | Integer | Random number generated by the computer | On level ‘1’: 1 t o 100  On level ‘2’: 1 to 1000 | - |
| numberTwo | Integer | Random number generated by the computer | On level ‘1’: 1 to 100  On level ‘2’: 1 to 1000 | - |
| biggerOrSmaller | Integer | Decides whether the the question will be asking for the bigger number, or smaller number. | ‘1’ - meaning smaller  ‘2’ - meaning bigger | - |
| userAnswer | String | This is the answer the user inputs | Either numberOne or numberTwo | - |

**Possible Outcomes**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **biggerOrSmaller is asking for** | **Question shows that** | **Computer answer (expected result)** | **User says** | **User Results** | **Outcome to score** |
| Bigger number | numberOne > numberTwo | numberOne | numberOne | Correct | +1 |
| numberTwo | Incorrect | +0 |
| numberTwo > numberOne | numberTwo | numberTwo | Correct | +1 |
| numberOne | Incorrect | +0 |
| Smaller number | numberOne < numberTwo | numberOne | numberOne | Correct | +1 |
| numberTwo | Incorrect | +0 |
| numberTwo < numberOne | numberTwo | numberOne | Correct | +1 |
| numberTwo | Incorrect | +0 |

**Game flow steps**

1. Start
2. Say: “What is your name?”
   1. Store under userName
3. Say: "Welcome to Comparer (input the userName) this game you will be given 2 numbers and you will have to choose the bigger/smaller one, this will be it will specify in the question. There will be 2 levels and you have to get 3 points to pass a level. Good luck and I hope you have fun!"
4. Set userScore = 0 & level = 1
5. Repeat whenever (userscore < 3)
   1. If level = 1
      1. Generate random number for numberOne which is ≤ 100
      2. Generate random number for numberTwo which is ≤ 100
         1. Make sure they aren’t the same
   2. If level = 2
      1. Generate random number for numberOne which is ≤ 1000
      2. Generate random number for numberTwo which is ≤ 1000
         1. Make sure they aren’t the same
   3. Selects a random comparative adjective: bigger (2) or smaller (1).
   4. Say: "Which number is (input biggerOrSmaller comparative adjective)? (input numberOne) or (input numberTwo)
      1. Store as userAnswer
   5. Check to see if user is correct.
      1. If userAnswer = correct
         1. (Say: ”Yay (input the userName)! You got it right")
         2. userScore + 1
      2. If userAnswer incorrect
         1. (Say: “Sorry (input the userName)! You got it wrong, try another set of numbers")
         2. No change to userScore
         3. Move on to different question
      3. If userAnswer not numberOne or numberTwo
         1. (Say: “Sorry (input userName), this is not a valid answer, try again”)
         2. Re-ask question
   6. Say: "Progress: Your score is: (input the userScore). You're on level: (input the level)
6. When userScore = 3 & level = 1
   1. Set level = 2 & userScore = 0
   2. Say: "Congratulations (input the userName)! You're on level 2 now! The numbers will be a little bit larger now and your score will be reset to zero."
   3. Go back and repeat the above loop.
7. When userScore = 3 & level = 2,
   1. Say: “"Congratulations (input the userName)! You have completed Comparer! YAY!"
8. Finish

**Tests - valid input**

|  |  |
| --- | --- |
| **Process** | **Test user Input** |
| Start |  |
| Say: “What is your name?”   * Store “Ananya” as userName | Ananya |
| Give instructions   * Set userScore = 0 & level = 1 |  |
| Set:   * Generate numberOne: 78 * Generate numberTwo: 88 * Comparative Adjective: Bigger |  |
| Say: "Which number is bigger? 78 or 88?”   * Store as userAnswer | 88 |
| Say: ”Yay Ananya! You got it right"   * Add 1 to userScore |  |
| Say: "Progress: Your score is: 1. You're on level: 1” |  |
| Set:   * Generate numberOne: 75 * Generate numberTwo: 24 * Comparative Adjective: Smaller |  |
| Say: "Which number is smaller? 75 or 24?”   * Store as userAnswer | 75 |
| Say: “Sorry Ananya! You got it wrong, try another set of numbers" |  |
| Set:   * Generate numberOne: 38 * Generate numberTwo: 98 * Comparative Adjective: Bigger |  |
| Say: "Which number is bigger? 38 or 98?”   * Store as userAnswer | 98 |
| Say: ”Yay Ananya! You got it right"   * Add 1 to userScore |  |
| Say: "Progress: Your score is: 2. You're on level: 1” |  |
| Set:   * Generate numberOne: 74 * Generate numberTwo: 62 * Comparative Adjective: Bigger |  |
| Say: "Which number is bigger? 74 or 62?”   * Store as userAnswer | 74 |
| Say: ”Yay Ananya! You got it right"   * Add 1 to userScore |  |
| Say: "Progress: Your score is: 3. You're on level: 1” |  |
| Say: "Congratulations Ananya! You're on level 2 now! The numbers will be a little bit larger now and your score will be reset to zero."   * Set level = 2, userScore = 0 |  |
| Set:   * Generate numberOne: 184 * Generate numberTwo: 998 * Comparative Adjective: Bigger |  |
| Say: "Which number is bigger? 184 or 998?”   * Store as userAnswer | 998 |
| Say: ”Yay Ananya! You got it right"   * Add 1 to userScore |  |
| Say: "Progress: Your score is: 1. You're on level: 2” |  |
| Set:   * Generate numberOne: 743 * Generate numberTwo: 374 * Comparative Adjective: Smaller |  |
| Say: "Which number is Smaller? 743 or 374?”   * Store as userAnswer | 374 |
| Say: ”Yay Ananya! You got it right"   * Add 1 to userScore |  |
| Say: "Progress: Your score is: 2. You're on level: 2 |  |
| Set:   * Generate numberOne: 274 * Generate numberTwo: 364 * Comparative Adjective: Smaller |  |
| Say: "Which number is Smaller? 274 or 364?”   * Store as userAnswer | 274 |
| Say: ”Yay Ananya! You got it right"   * Add 1 to userScore |  |
| Say: "Progress: Your score is: 3. You're on level: 2 |  |
| Say: “"Congratulations (input the userName)! You have completed Comparer! YAY!" |  |
| End |  |

**Invalid input**

|  |  |
| --- | --- |
| **Process** | **Test user Input** |
| Start |  |
| Say: “What is your name?”   * Store “Ananya” as userName | Ananya |
| Give instructions   * Set userScore = 0 & level = 1 |  |
| Set:   * Generate numberOne: 78 * Generate numberTwo: 88 * Comparative Adjective: Bigger |  |
| Say: "Which number is bigger? 78 or 88?”   * Store as userAnswer | bluex97 |
| Say: “Sorry Ananya, this is not a valid answer, try again” |  |
| Say: "Which number is bigger? 78 or 88?”   * Store as userAnswer | 88 |
| *Follow first test till end* |  |