TALENT TREE SIMULATOR

User Manual

AST20105 Data Structures & Algorithms

Group Project

This program is called talent tree simulator. The idea comes from RPG (Role-Playing game), that a user character can obtain all the nodes in a provided talent tree. Also, the special point of this program is that users can modify the tree by themselves outside the default tree. Most of the RPGs do not provide this kind of service. To start the game, you have to follow the instruction below.

First, you have to set your character name.

After you input the name and press enter, the system will ask for your permission to proceed. You can see the next part if you press y.

You can select a profession for your character. 'm' is mage, who has greater amount of MP and magic attack point compared to warrior('w'). Warrior ('w') has more strength and HP points compared to mage ('m').

```
Input M for mage, who has stronger power in magic attack and higher amount of MP.
Input W for warrior, who has stronger power in physical attack and higher amount of HP.
Input: m

Are you sure to proceed with the profession 'Mage' ?
With the initial status of
---------
|HP: 20 |
|Str: 5|
|MP: 25 |
|Int: 30|
---------
Please press Y as yes, N for no.
n

Which type of profession would you want?
Input M for mage, who has stronger power in magic attack and higher amount of MP.
Input W for warrior, who has stronger power in physical attack and higher amount of HP.
Input: w

Are you sure to proceed with the profession 'Warrior' ?
With the initial status of
---------
|HP: 30 |
|Str: 30|
|MP: 10 |
|Int: 10|
---------
Please press Y as yes, N for no.
y
```

You can press y if you want to proceed further with this setting.

```
Input the corresponding number if you want to use the functions below


-----------------------------------------
|Menu                                     |
|1. Call the Menu                         |
|2. Current Status of the Character       |
|3. Overview of Talent Tree               |
|4. Search Nodes                          |
|5. Obtain status/ skills in Talent Tree|
|6. Obtain infinite costs                 |
|7. Edit Talent Tree                      |
|8. Official Website                      |
|9. Quit the game                         |
-----------------------------------------




What do you want to do now? (Please input the number in the menu or type 1 to call menu)
```

After the recognition, the welcome message will be prompt with the user menu, which will be used in controlling the game. You can call function according to the number of menu. For example, you can get the review of menu if you press 1.

```
Current Status of the Character
Name: Tanya
Profession: Warrior
Current Status of the Character

--------------
HP: 30
Str: 30
MP: 10
Int: 10
Cost: 999
Skills:

-------------
```

You can see your current status pressing 2.

```
What do you want to do now? (Please input the number in the menu or type 1 to call menu)
Input: 3


                              |    ID: 6    |<<<<| ID: 5   |
                              |    Guard    |<<<<| HP+9    |
                              |    Cost: 7  |<<<<| Cost: 5 |
                              |    Got: N   |<<<<| Got: N  |
                                                 ^
                                                 ^
                                                 ^
      ID: 9   |<<|  ID: 8   |<<|  ID: 7   |<<    |    ID: 4   |>>>>| ID: 10   |
      Explode |<<|  Str+9   |<<|  JUMP II  |<<   |    MP+7    |>>>>| Poison II |
      Cost: 7 |<<|  Cost: 7 |<<|  Cost: 5 |<<    |    Cost: 5 |>>>>| Cost: 5  |
      Got: N  |<<|  Got: N  |<<|  Got: N  |<<    |    Got: N  |>>>>| Got: N   |
                                                 ^
                                                 ^
                                                 ^
                              |    ID: 3   |>>|  ID: 11  |>>|  ID: 12  |>>|  ID: 13  |>>|  ID: 14  |
                              |    Kick I  |>>|  Spin    |>>|  MP+7    |>>|  Pound   |>>|  Rage    |
                              |    Cost: 3 |>>|  Cost: 5 |>>|  Cost: 5 |>>|  Cost: 7 |>>|  Cost: 7 |
                              |    Got: N  |>>|  Got: N  |>>|  Got: N  |>>|  Got: N  |>>|  Got: N  |
                                                 ^
                                                 ^
                                                 ^
      ID: 17         |<<|  ID: 16  |<<|  ID: 15  |<<<<| ID: 2    |
      Jump III       |<<|  Str+7   |<<|  Jump I  |<<<<| Str+5    |
      Cost:   5      |<<|  Cost: 5 |<<|  Cost: 3 |<<<<| Cost: 3  |
      Got: N         |<<|  Got: N  |<<|  Got: N  |<<<<| Got: N   |
                                                 ^
                                                 ^
                                                 ^
      ID: 20  |<<|  ID: 19  |<<|  ID: 18  |<<|  ID: 1      |>>|  ID: 21  |>>|  ID: 22   |>>|  ID: 23  |>>|  ID: 24  |
      Int+9   |<<|  Splash  |<<|  HP+5    |<<|  Origin (START) |>>|  MP+5    |>>|  Poison I  |>>|  HP+7    |>>|  Str+9   |
      Cost: 5 |<<|  Cost: 3 |<<|  Cost: 3 |<<|  Cost: N/A     |>>|  Cost: 3 |>>|  Cost: 3  |>>|  Cost: 5 |>>|  Cost: 5 |
      Got: N  |<<|  Got: N  |<<|  Got: N  |<<|  Got: Y        |>>|  Got: N  |>>|  Got: N   |>>|  Got: N  |>>|  Got: N  |
                                                 v
                                                 v
                                                 v
      |    ID: 45  |<<|  ID: 44  |<<|  ID: 43  |<<|  ID: 25  |
      |    Int+7   |<<|  MP+5    |<<|  Cure I  |<<|  Int+5   |
      |    Cost: 5 |<<|  Cost: 5 |<<|  Cost: 3 |<<|  Cost: 3 |
      |    Got: N  |<<|  Got: N  |<<|  Got: N  |<<|  Got: N  |
                                                 v
      |    ID: 38  |<<|  ID: 37  |<<|  ID: 26  |>>|  ID: 39  |>>|  ID: 40  |>>|  ID: 41  |>>|  ID: 42  |
      |    Shield  |<<|  Ice I   |<<|  HP+5    |>>|  Fire I  |>>|  Int+7   |>>|  HP+9    |>>|  Cure II |
      |    Cost: 5 |<<|  Cost: 5 |<<|  Cost: 3 |>>|  Cost: 5 |>>|  Cost: 5 |>>|  Cost: 7 |>>|  Cost: 7 |
      |    Got: N  |<<|  Got: N  |<<|  Got: N  |>>|  Got: N  |>>|  Got: N  |>>|  Got: N  |>>|  Got: N  |
                                                 v
                                                 v
      |    ID: 33  |<<|  ID: 32  |<<|  ID: 31  |<<|  ID: 27  |>>|  ID: 34  |>>|  ID: 35  |>>|  ID: 36  |
      |    Str+9   |<<|  Fire II |<<|  Int+7   |<<|  Str+7   |>>|  MP+7    |>>|  Ice II  |>>|  MP+9    |
      |    Cost: 7 |<<|  Cost: 7 |<<|  Cost: 5 |<<|  Cost: 5 |>>|  Cost: 5 |>>|  Cost: 7 |>>|  Cost: 7 |
      |    Got: N  |<<|  Got: N  |<<|  Got: N  |<<|  Got: N  |>>|  Got: N  |>>|  Got: N  |>>|  Got: N  |
                                                 v
                                                 v
                                                 v
                              |    ID: 28  |
                              |    MP+7    |
                              |    Cost: 5 |
                              |    Got: N  |
                                                 v
                                                 v
                                                 v
                              |    ID: 29      |>>|  ID: 30  |
                              |    Fire III    |>>|  Flare   |
                              |    Cost: 7     |>>|  Cost: 7 |
                              |    Got: N      |>>|  Got: N  |


Id = index (unique representative) of the node
Got: Y = the node has been visited
Got: N = the node has not been visited yet


The remaining cost to derive all the nodes is 226 in total.
The minimum cost of the next node is 3 costs.
```

You can see the current view of talent tree on pressing 3.

```
What do you want to do now? (Please input the number in the menu or type 1 to call menu)
Input: 4


Which node do you want to search? Please input the index of the node.
If you want to review the talent tree, please input -1 to quit and view talent tree.
Index: 29


You current position:

|       Index: 1        |



The way you should go for the required node:

|       Index: 25       |
|       Int+5   |
|       Cost: 3 |

        v
        v

|       Index: 26       |
|       HP+5    |
|       Cost: 3 |

        v
        v

|       Index: 27       |
|       Str+7   |
|       Cost: 5 |

        v
        v

|       Index: 28       |
|       MP+7    |
|       Cost: 5 |

        v
        v

|       Index: 29       |
|       Fire III        |
|       Cost: 7 |

You have to pay 23 costs to derive all the nodes listed here.
The minimun cost to get all these nodes is 3 costs.


Do you want to derive all the nodes listed here?
Input 'y' for confirmation, 'n' to quit
y


Now the status has been updated.


Current Status of the Character
-------------
HP: 35
Str: 37
MP: 17
Int: 15
Cost: 99976
Skills:

Fire III
-------------


Which node do you want to search? Please input the index of the node.
If you want to review the talent tree, please input -1 to quit and view talent tree.
Index: -1_
```

You can press 4 to start using the search function. You can type in the destination index you want to derive to. When you press "y", you will then obtain all the nodes till your destination index in one go.

```
What do you want to do now? (Please input the number in the menu or type 1 to call menu)
Input: 5


|         Index: 2         |
|         Str+5   |
|         Cost: 3         |

|         Index: 18       |
|         HP+5    |
|         Cost: 3         |

|         Index: 21       |
|         MP+5    |
|         Cost: 3         |

|         Index: 25       |
|         Int+5   |
|         Cost: 3         |


Which node do you want to obtain?(Please input the index number , -1 for quit)
Input: 2
```

If you press 5, you can see what nodes can be obtained and the total amount of the costs required getting all the nodes in current situation. You should input the corresponding index number of the node which you want to obtain in the list. Assuming you want to get Str+5 in index 2. You have to enter 2 to get the corresponding node.

```
Current Status of the Character
-------------
HP: 30
Str: 35
MP: 10
Int: 10
Cost: 99996
Skills:

-------------



|         Index: 3        |
|         Kick I  |
|         Cost: 3        |

|         Index: 15      |
|         Jump I  |
|         Cost: 3        |

|         Index: 18      |
|         HP+5    |
|         Cost: 3        |

|         Index: 21      |
|         MP+5    |
|         Cost: 3        |

|         Index: 25      |
|         Int+5   |
|         Cost: 3        |
```

The current status of the character will be prompted after you get the node. Then, the new viable node will be shown in the list. You can continue your work when you want to obtain more. Otherwise, enter -1 to quit function.

```
                                          ^
                                          |    ID: 3    |>>|    ID: 11   |>>|    ID: 12   |>>|    ID: 13   |>>|
                                          |    Kick I   |>>|    Spin     |>>|    MP+7     |>>|    Pound    |>>|
                                          |    Cost: 3  |>>|    Cost: 5  |>>|    Cost: 5  |>>|    Cost: 7  |>>|
                                          |    Got: N   |>>|    Got: N   |>>|    Got: N   |>>|    Got: N   |>>|
                                          ^
                                          ^
                                          ^
   ID: 17          |<<|    ID: 16  |<<|    ID: 15  |<<<<|    ID: 2    |
   Jump III        |<<|    Str+7   |<<|    Jump I  |<<<<|    Str+5    |
   Cost:   5       |<<|    Cost: 5 |<<|    Cost  3 |<<<<|    Cost: 3  |
   Got: N          |<<|    Got: N  |<<|    Got: N  |<<<<|    Got: Y   |
                                                          ^
                                                          ^

   ID: 20  |<<|   ID: 19  |<<|   ID: 18  |<<|   ID: 1               |>>|   ID: 21  |>>|   ID: 22         |>>|   ID: 23

   Int+9   |<<|   Splash  |<<|   HP+5    |<<|   Origin (START)  |>>|   MP+5    |>>|   Poison I       |>>|   HP+7

   Cost: 5 |<<|   Cost: 3 |<<|   Cost: 3 |<<|   Cost: N/A       |>>|   Cost: 3 |>>|   Cost: 3        |>>|   Cost: 5

   Got: N  |<<|   Got: N  |<<|   Got: N  |<<|   Got: Y          |>>|   Got: N  |>>|   Got: N         |>>|   Got: N

                                                               v
                                                               v
                                                               v
   |      ID: 45  |<<|   ID: 44  |<<|   ID: 43  |<<|   ID: 25  |
   |      Int+7   |<<|   MP+5    |<<|   Cure I  |<<|   Int+5   |
   |      Cost: 5 |<<|   Cost: 5 |<<|   Cost: 3 |<<|   Cost: 3 |
   |      Got: N  |<<|   Got: N  |<<|   Got: N  |<<|   Got: Y  |
                                                               v
                                                               v
```

If you get the node, the immediate response will be posed in overview of talent tree (function 3). Got: Y indicates that the node has been obtained.

```
What do you want to do now? (Please input the number in the menu or type 1 to call menu)
Input: 6



The cost has been updated sucessfully.
Now you have 99999 costs.
```

You can fill costs into the character by calling function 6.

```
What do you want to do now? (Please input the number in the menu or type 1 to call menu)
Input: 7


Please Enter the command for node insertion (1) , deletion(2) or quit(-1).
Input: 1
Please input what position do you want to insert. (Or input -1 for quit)
After index: 30
Please input which type of node do you wish to insert.
Input 's' for skill, 'c'for status; only one character is allowed.
Or you can type 0 to leave
Input: S

Please input the name of the skill
NEW



The new node has been added sucessfully.
|       NEW      |
|       Cost: 9 |
|       Index: 46        |



Please Enter the command for node insertion (1) , deletion(2) or quit(-1).
Input:
```

You can create a new node by calling function 7. In this function, you can choose the way to edit the default talent tree, including doing insertion or deletion. We choose insertion as example first.

First, you have to find out the nailing point of default talent tree to insert a new node. Otherwise you will fail to do so. You can call function 3 to check the nailing index number and input here. Then, you have to input c to generate a new node for status. After then, you should create a name for your new node.

```
        v
        v
|       ID: 28   |
|       MP+7     |
|       Cost: 5  |
|       Got: Y   |
        v
        v
        v
|       ID: 29           |>>|     ID: 30   |>>|     ID: 46  |
|       Fire III         |>>|     Flare    | >|     NEW     |
|       Cost: 7          |>>|     Cost: 7  | >|     Cost: 9 |
|       Got: Y           |>>|     Got: Y   | >|     Got: Y  |
```

Skip some steps. Assuming you now get the new added node.

Meanwhile, you can quit the edit tree function and press 2 to check the current status of the character.

```
What do you want to do now? (Please input the number in the menu or type 1 to call menu)
Input: 2



Current Status of the Character
Name: Tanya
Profession: Warrior
Current Status of the Character

--------------
HP: 35
Str: 37
MP: 17
Int: 15
Cost: 99960
Skills:

Fire III
Flare
NEW
--------------
```

```
What do you want to do now? (Please input the number in the menu or type 1 to call menu)
Input: 7


Please Enter the command for node insertion (1) , deletion(2) or quit(-1).
Input: 2

Please enter which node do you want to delete OR you can type -1 to quit.
Notice: User is only allowed to delete the existing nodes AND the newly added nodes (Index>=46) .
Index: 46
The node has been deleted successfully.




What do you want to do now? (Please input the number in the menu or type 1 to call menu)
Input: 2



Current Status of the Character
Name: Tanya
Profession: Warrior
Current Status of the Character

--------------
HP: 35
Str: 37
MP: 17
Int: 15
Cost: 99960
Skills:

Fire III
Flare
-------------
```

If you delete the new added node in function 7, your status will be rolled back automatically.

```
What do you want to do now? (Please input the number in the menu or type 1 to call menu)
Input: 8



Thanks for your interest of this game !
If you want to comment, please go to
http://simulator.hk/group1/disscussion.html
We are looking forward for your participation!
```

Function 8 is showing the information about official website.

```
What do you want to do now? (Please input the number in the menu or type 1 to call menu)
Input: 9



Are you sure to quit the game?
Press Y for yes, N for no.
Input: y

Thanks for your Joining, User Tanya !
See you next time =)
```
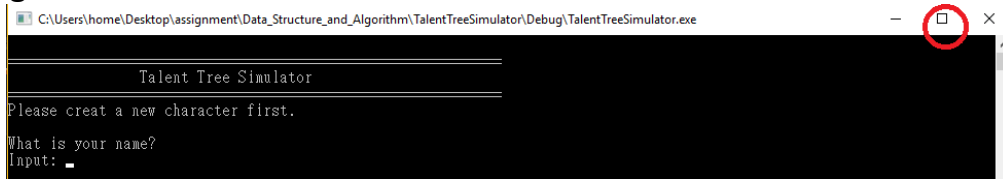
Call function 9 to quit the game.

WARNING! SOME ACTIONS MAY MAKE THE PROGRAM FUNCTIONING INAPPROPRIATELY

Please adjust the console size with the button in circle to have the complete view of talent tree by calling function 3.

Please input appropriately according to the instruction.

- ✧ You should type correctly according to the data type indicated in the instruction.
  - For instance, you should type numerical data in the control menu.
- ✧ Otherwise, the program may get freeze until you re-open it.
  - For example: the selection of functions in menu

    the control menu for node creation / deletion

Be careful in the node edit.

- ✧ Be careful of the naming in **creating skill node**.
  - The program gets malfunctioning when user includes space " " in the skill name.
  - The infinite message prompting will occurs.
  - The ways to solve the problems are to input the skill name without space or re-open the program when you get infinite messages.

- ✧ Please only **add** the node behind the existing index id.

  - The node will be added according to the user input.
  - However, if you input the index of the not existed node, which you newly added and deleted before, the linkage with the default talent tree will be lost.
  - This node cannot be obtained or modified anymore.

- ✧ When you **delete** the newly created node in front of the other newly created node in the same direction, you can get inappropriate output on talent tree overview (function 3).

  - For example, you want to delete 50 first and then delete 51
  - However, if you delete 50, the linkage to 51 will also disappear in the view of talent tree.
  - Luckily, the automatic roll back for 51 can function appropriately if you try to delete node 51.
  - Therefore, make sure that you delete the one with greater amount of index first.
  - (reminder: Id = index, Got : Y = obtained , Got : N = not yet obtained)