Hassan Harajly

Cis 350

1/26/18

**Anagram Lab**

|  |  |  |
| --- | --- | --- |
| **Function** | **Time/comment** | **Space/comment** |
| Main() | O(n^2)  Main calls the sortfunction and print function | O(n^2)  Input is stored inside of a vector vector inside of sort function and add function |
| SortClasses() | O(n^2)  Nested for loop | O(n^2) sets vector from main equal to a vector vector |
| Print() | O(n^2)  Nested for loop displays classes of elements of number n | O(1) |
| Add() | O(1) adds one element to vector each call | O(1) adds n amount of elements to vector |

|  |  |  |  |
| --- | --- | --- | --- |
| Reason | Input Data | Expected output | Actualoutput |
| Incorrect data entry | 165 | you must enter 2 numbers seperated by a single space | you must enter 2 numbers seperated by a single space |
| Check for input larger than 99 | 100 5 | Will ask for input | Asked for input no error message |
| Invalid button mashing | 38ujnjd | you must enter 2 numbers seperated by a single space | you must enter 2 numbers seperated by a single space |
| Check if numbers work, since numbers can be anagrams | 123,321 | Creates and class correctly and displays them | Creates and class correctly and displays them |
| Check if letter input crashes the program | Aa a | Nothing happens | Nothing happens |
| Minimum data entry | 1 5, firstword | Displays”first word” in class one | Displays”first word” in class one |
| Check if spaces affect output | Ha s, s ah, lma o, oaml | Class of size 2: ha s s ah .  Class of size 1: lma o .  Class of size 1: oaml . | Class of size 2: ha s s ah .  Class of size 1: lma o .  Class of size 1: oaml . |
| Check to see if program interprets symbols as anagrams | &&& | Correctly arranges the anagrams |  |
| Check if display 0 returns no output | 10 0 | Doesn’t display any classes | Doesn’t display anyclasses |
| Check for duplicates | 4 4, hass, hass, hass, hass | Displays only 1 “hass” of class size one | Displays only 1 “hass” of class size one |
| Check if program runs correctly | undisplayed  trace  tea  singleton  eta  eat  displayed  crate  cater  carte  caret  beta  beat  bate  ate  abet | Class of size 5: caret carte cater crate trace .  Class of size 4: abet bate beat beta .  Class of size 4: ate eat eta tea .  Class of size 1: displayed .  Class of size 1: singleton . | Class of size 5: caret carte cater crate trace .  Class of size 4: abet bate beat beta .  Class of size 4: ate eat eta tea .  Class of size 1: displayed .  Class of size 1: singleton . |
| Check if program correctly removes duplicates and keeps legal data | 12 7  sam  sam  asm  lmao  oaml  run  nur  urn  sah  hsa  pooiu  iouop | Class of size 3: nur run urn .  Class of size 2: asm sam .  Class of size 2: hsa sah .  Class of size 2: iouop pooiu .  Class of size 2: lmao oaml .  Press any key to continue . . . | Class of size 3: nur run urn .  Class of size 2: asm sam .  Class of size 2: hsa sah .  Class of size 2: iouop pooiu .  Class of size 2: lmao oaml .  Press any key to continue . . . |
| Check if program displays only max class sizes and goes down accordingly until second condition is met | 12 2  saab  asab  baas  basa  saab  oml  mol  lmo  idk  kdi  oi  io | Class of size 4: asab baas basa saab .  Class of size 3: lmo mol oml .  Press any key to continue . . . | Class of size 4: asab baas basa saab .  Class of size 3: lmo mol oml .  Press any key to continue . . . |