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| PROJECT#4 |
| [tsuPod]  Due Date: Displayed on TRACS  (100 points)  CS 2308  Department of Computer Science, Texas State University |

**Objective:**

Implement the storage portion of the tsuPod (pronounced "su Pod" - the much smaller version of the iPod). Learn how to use structures.

**Specifications:**

*General design:*

The code must be designed to allow the storage of the following data:

* up to 8 songs not to exceed 25MB
* for each song we will store the title (string), artist (string), and size (int) in MB
* the title and artist cannot be blank
* the size of each song must be greater than zero

*Code design:*

* you are provided with the tsuPod.h file with prototypes of the functions that you need to define. (Note: some of the prototypes have to be modified for the test code to work correctly)
* you have to create file tsuPod.cpp where you define functions specified in tsuPod.h file
* you have to edit file test\_tsuPod.cpp that tests the functionality of tsuPod
* following variables and structures must be declared in your tsuPod.h or tsuPod.cpp code (Note: in your code 8 songs should be presented by an array of structure variables)  
    
  const int NUM\_SONGS = 8; /\*we will have the maximum 8 slots with some slots being empty /  
  const int MEMORY\_SIZE = 25; /\*total memory size of tsuPod in MB\*/  
    
  struct TsuPod

{

string title;

string artist;

int size;

};

* tsuPod.h should be included in both tsuPod.cpp and test\_tsuPod.cpp
* You must use linux for this project. you need to type “g++ tsuPod.cpp test\_tsuPod.cpp” to compile and get the executable file. **Note:** all code will compiled by the grader under linux on eros.cs.txstate.edu.

*Testing:*

* Edit file test\_tsuPod.cpp where you are going to test required functionality of the tsuPod program.
* Following storage functionalities have to be tested to receive full grade:
  + Initialization
  + Successful song addition
  + Unsuccessful song addition – failure due to the lack of memory
  + Unsuccessful song addition – failure due to other reason (ex: no empty slots)
  + Successful song removal
  + Unsuccessful song removal – failure because a song with such name was not found
  + Clearing of the song list
  + Shuffle functionality – implementation and testing of this function will result in an extra grade.
* In your test\_tsuPod.cpp explain you what exactly you are testing with each block of code. Examples: test addition of a song to a play list, test shuffling capabilities, etc.

tsuPod.h file and the example of the test\_tsuPod.cpp are located in the archive of the assignment

Be sure to follow the [style standards](http://www.cs.txstate.edu/%7Ejs05/2308/spring07/251/style.html) for the course.

**IMPORTANT!**

On top of each file include your name, date and assignment number. Add:

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Name:

Date:

Problem Number:

Hours spent solving the problem:

Instructor: Komogortsev, TSU

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**IMPORTANT!**

You **must name** submit all three files tsuPod.h, tsuPod.cpp, test\_tsuPod.cpp in one archive prog4\_xxxx.zip your C++ source file wherexxxxxx is your TXstate id number. Use Assignment link on the TRACS course web-page to upload your file. Be sure that your file is uploaded (you should receive an e-mail confirmation of your submission is successful).

In case if you are not able to upload your project through TRACS send you project to the grader (contact info can be found in Syllabus) **BEFORE** the deadline.

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**Cheating and Copy:**

If a copy (from your class mate or from web) is caught, all involved submissions (original as well as the copies) will be penalized. So it is your responsibility to guard your work. Secure the read/write access of your directories. Any copy will result in ZERO grade for the assignment for both party. Only exception is when you report the theft of your work in advance.