

AP Computer Science
Final Exam Program

Name _____

The following test is due on or before Friday, May 30, 2008 **the end of the school day (3:00 P.M.)**. It will not be accepted after this time. This test is to be done independently, without the aid of websites, knowledgeable acquaintances and classmates or any other aid that would not be available during a normal in-class exam. The one exception is consulting the Java API for reference. There is no time limit on the exam, only the condition that once you open the exam you do not consult any of the above-disallowed references.

Hereunder I sign that I've read these conditions and will abide by them. I understand that Mr. Harris will grade the exam fairly. I also understand that Mr. Harris finds academic dishonesty increasing, and totally reprehensible as well as personally insulting.

Signed: _____

AP Computer Science myTunes Final

Objective: To design and implement a complete software solution with an efficient data structure, using all of your current programming knowledge.

Program Description: This program is designed to emulate Apple's iTunes software, and manage the music, movies, TV shows and Podcasts in your digital library. Each of the media types listed needs to be derived from a base class that is capable of common tasks; including retrieval, sorting, adding new items, and removing or deleting media. Additionally each specific media type must be sortable based in its unique characteristics. The structure must provide for easy and efficient access. Once added to your library the item will rarely if ever be removed, so fast access takes precedence. And you only need to add it once.

The Media Types are defined as follows:

- A Music file will contain the following information:
Name, Time, Artist, Album, Track Number, Genre
- A Movie file will contain the following information:
Name, Time, Genre, Year
- A TV Show file will contain the following information:
Name, Time, Show Episode Title, Season
- A Podcast file will contain the following information:
Name, Time, Artist, Release Date, Description

The program should be menu-driven reading in the users library on load, and saving it upon exit. The format of the data file is left to your discretion; just remember to submit a copy with your program. The user should be allowed to add and delete new items to their library. The display of songs, movies etc is required and the sort order should be adjustable beyond the initial default order set by you the programmer:

Submissions for the exam should include:

1. The attached cover sheet, signed
2. This assignment sheet stapled to the above
3. An electronic submission of the project and all the required files through First Class as a .zip file. Including your data file.

AP Computer Science mySchedule Final

Objective: To design and implement a complete software solution with an efficient data structure, using all of your current programming knowledge.

Program Description: This program is designed to maintain all the data for a Youth Soccer League. The software will need to track all the data on Players, Teams and Divisions.

The Player data should include:

- Name
- Address
- City
- State
- Age
- Phone Number
- Email Address
- Zipcode

The Team data should include:

- Name
- Roster
- Schedule
- Coach
- Division
- Section

The Schedule data should include:

- Date
- Opponent
- Score
- Field

Each of the above data types needs to be integrated to create a complete data management program that is capable of the common tasks needed to run a league. These should include: creation of a League, adding new teams and players, retrieval of a schedule, appropriate sorting of all data types, and removal of teams and players. The structure must provide for easy and efficient access to update rosters, and scores of games. Once added to your League, a team will rarely if ever be removed, so fast access takes precedence. And you only need to add it once.

The program should be menu-driven reading in a League (if it exists) on load, and saving it upon exit. The format of the data file is left to your discretion; just remember to submit a copy with your program. The user should be allowed to add and delete, and modify all members of the league. The display of team standings, rosters etc is required and the sort order should be appropriate for that type of information.

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AP Computer Science Basketball Final

Objective: To design and implement a complete software solution with an efficient data structure, using all of your current programming knowledge.

Program Description: This program is designed for the coach of a High School Basketball team to maintain and update his player's statistics, and print rosters for scorekeeping. The program requires the selection of an appropriate data structure to hold all the relevant statistical information on twelve players, which allows for easy and efficient updates and output.

The Players data should include:

- Name
- Jersey Number
- Position
- Height
- Weight
- Year
- Points
- Rebounds
- Assists

The Menu driven program should provide the following options.

Basketball Manager Menu

- 1) Player Management
 - A) Create a Team
 - B) Add a Player
 - C) Remove a Player
 - D) Update Player Data
 - E) Load existing team from file
 - F) Save the current Team
- 2) Roster Moves
 - G) Choose starting five
 - H) Add Player
 - I) Remove Player
- 3) Output Options
 - J) Display complete Roster
 - K) Display Starting Team

Notes on menu items:

1. Allows the user to create a new team, or read an existing one from a file. Once the data is loaded the coach can add, remove and update player information, and finally save the file when finished.
2. Allows the coach to choose his starting 5 players for a game, alerting the coach if the players do not make-up a complete team (1-Center, 2-Forwards, 2-Guards). This is also maintained in each player's record.
3. Allows display to occur for both groups of players (Full Roster or Starting Five) and sorted by any of the data categories that comprise a player. Sorting should occur in the data's natural order:
Name-alphabetical, Jersey Number-Ascending, Points-Ascending, Rebounds-Ascending, Assists-Ascending, Position-Grouped by type, Height-Ascending.
Display will output all players' information; the category just determines the order.

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