3. Propose a software application that you would like a group of students in our class to build as their class projects. Your description of the application must be specific and concrete. If your application is chosen by the instructor, you will receive 1 extra credit (on top of your overall grade) at the end of the semester. Of course, you can still work on your own application if it is chosen by the instructor. (40 Points)

The application that I would like to propose is an administrative application for the San Diego Naval Reserve Officer Training Corps (NROTC) which is a consortium of five different universities: CSUSM, UCSD, USD, SDSU, and PLNU. There are roughly 300 or more personnel consisting of about 20 permanent staff (instructors), a student staff, and a student body. Both staffs need to access and maintain vital information for the unit to operate properly. The application is used to maintain data on all students during their tenure in the program which includes: academic progress, academic degree plans, physical fitness test scores, body composition (height and weight) evaluations, completion of military training events, volunteer hours, mentorship details, counseling notes, awards received, communication methods for approval within the chain of command, and event scheduling.

I will explain in detail each of the required items that needs to be incorporated below but currently the unit utilizes many different spreadsheets, most of which contain repeating information. However, these documents do not always connect to each other due to the need of specific authorized user permissions for different parts that relate to their individual job. The cycle of most information is specific to every academic semester, however, the information must be retained for historical data and to track student history.

It is important that this application will be accessible to all members and will include security measures, specific user permissions, messaging, document storage and access, and unique user accounts such that

the application can be accessed online by multiple users simultaneously. Ideally the application will be mobile-friendly but is not necessary.

Details of items that must be incorporated:

Individual User Accounts. Every member must be able to access the program and have confidentiality from other users without a 'need to know' reason for access. Also, users will need to electronically sign documents as well as have specific permissions. Therefore, each user needs to have a username and password. Password reset and updating passwords functionality will also be required.

Register New User Account. Establish username and default password. Enter all static type data that is not likely to change:

- User type [Staff, Student]
- Last Name, First Name Middle Initial
- Date of birth
- Gender
- Service Program [Scholarship, College Programmer, MECEP, STA-21]
- Service Option [Navy, Marine Corps] (Can add other branches for potential incorporation)
- Rank [1/C, 2/C, 3/C, 4/C, E8, E7, E6, E5]
- University [CSUSM, PLNU, SDSU, UCSD, USD]
- Major
- Expected Graduation Semester [YYYY][Spring, Fall]
- OI
- Contract [Air, Ground, Restricted Line, Special Warfare, Subs, Unrestricted]
- Mailing Address*
- Physical Address* (Option to collect dorm room location)
- Phone Number*
- Regional Location* [South, North, Temecula]
  (* User can edit)

Student Profile. Each user account should must maintain history for each semester for the following:

- Semester [YYYY][Sp,Su,F,W]
- Assignment Code [Company][Platoon][Squad]
- Billets held
- Duty counter
- Submitted chits
- Class schedule
- Non-availability dates
- Physical status [Full duty, Light duty]

Program status [Active, LOA, DOR, Abroad, Grad]

- GPA (semester and cumulative)
- Member Trait Average
- Counseling sessions
- Mentorship sessions
- Physical Fitness Tests (date and scores)
- Weigh-ins (date, height, weight, and status)
- Officer Instructor (OI) Advisor
- Club events
- Community service hours

Document Storage. The unit has many directives and orders that should be accessible by all personnel. Additionally, students will need to be able to upload documentation for verification when submitting requests for leave or to miss required events. Certain billet (positions) holders will need to document rosters for events completed for various training.

Routing Processes (Chits). At times, students will need to request for time off or additional personal requests. These requests need to be approved through the student's chain of command which is a sequential routing process to recommend approval/disapproval with comments.

Chits will include an automatically generated unique chit identifier, the originator's name, assignment identifier, Chain of command, nature of request (matrix selection), originator's comments, comments and recommendation for each member in chain of command, chit from/to dates and times, originating timestamp, approving authority, days pending, status: either user needed to make next recommendation or approval authority's recommendation, rework indicator (clears all recommendations made but comments remain, indicator remains until the originator removes the indicator). Once the 'To date' and time has passed, the chit status becomes 'Historical'.

Chit Matrix. The Unit Staff will have permissions to set the approval and denial authority for all 'nature of request' options. Approval and denial authority will be a selection of billet titles of (CO, XO, CMDCS, OI, AMOI, BNCO, BNXO, CoCmdr, CoXO, Plt Cmdr, Plt Sgt).

Chain of Command. Each user will have a chain of command. This will be used for the routing process for all chits or counseling sessions. The chain of command will consist of:

1. [Unit Staff] Commanding Officer (CO) - Same for all students.
2. [Unit Staff] Executive Officer (XO) - Same for all students.
3. [Unit Staff] Command Senior Chief (CMDCS) - Same for all students.
4. [Unit Staff] Officer Instructor Advisor (OI) - Each student has an assigned OI.
5. [Unit Staff] Assistant OI (AMOI) - Same for all students.
6. [Student Staff] Battalion Commanding Officer (BNCO) - Same for all students.
7. [Student Staff] Battalion Executive Officer (BNXO) - Same for all students.
8. [Student Staff] Battalion Command Master Chief (BNCMC) - Same for all students.
9. [Student Staff] Company Commander (Co Cmdr) - Assigned Co. (Null for some)
10. [Student Staff] Company Executive Officer (Co XO) - Assigned Co. (Null for some)
11. [Student Staff] Company Senior Enlisted (Co 1stSgt) - Assigned Co. (Null for some)
12. [Student Staff] Platoon Commander (Plt Cmdr) - Assigned Plt. (Null for some)
13. [Student Staff] Platoon Sergeant (Plt Sgt) - Assigned Plt. (Null for some)
14. [Student Staff] Squad Leader (Sqd Ldr) - Assigned Sqd. (Null for some)

Duty Rosters. Everyday there are various duties that are assigned to student personnel to complete or to be on standby in case that event is called for during that day. Each student should have a counter for the current semester of how many times they are scheduled for any duty. The Watchbill Coordinator and his/her assistant are the only persons with permissions to change this schedule. The duty

schedule needs to auto-populate initially at the beginning of the semester. There are various restrictions to who is allowed to be scheduled for each duty such as:

- AM, PM, and PT drivers. Only the active duty personnel can stand this duty. The AM and PM drivers cannot have a class between 0730-1200 and 1200-1600 respectively. CSUSM students can only be scheduled as PM drivers and only Tuesday PT drivers.
- AM and PM Urinalysis Observers for each gender. A urinalysis might be randomly called throughout the month during weekdays, a male and female must be scheduled as a standby for the AM and PM observer. Only active duty and First Class (1/C) Midshipmen can stand this duty. CSUSM students can only be scheduled as PM observers.
- AM and PM Colors. Three midshipmen will need to scheduled every weekday to raise the national colors in the morning and lower them at the end of the day.
- Study Hall Proctors. One midshipmen that is the rank of 1/C, 2/C, or 3/C for each school in the afternoon will stand this duty. The duty cannot conflict with their class schedules.

Event Rosters. All staff (student and unit) should be able to create an event roster. The event roster should must include names, the event date, and event name. An option should be included at creation to restrict to a number of personnel and also an option to list billets that students may volunteer for. Students will only have access to available empty locations on the roster.

Event Calendar. A view only calendar of events should be available to all personnel. This should be populated automatically from the event rosters.

Personnel Assignments. All students will be assigned to a company, platoon, and squad. The unit consists of 4 companies, A, B, C, and S (Staff). All companies, except Staff, have 2 platoons, and each platoon has up to 4 squads. A designation identifier is listed as [Company Letter][Platoon Number][Squad Number] example: A11. Zero should be an option for platoon and squad numbers for designation as company or platoon staff members.

Billet Assignments. Billets are assigned to certain students for each semester. Students may also hold multiple billets. The billet titles should be editable by the administrator only but billets should be allowed to be created/deleted for each category of billets. Certain billets are always required which include:

- **Battalion Billets**: Battalion Commander (BNCO), Battalion Executive Officer (BNXO), Battalion Command Master Chief (BNCMC), Battalion Guide, Operations Officer (Ops O), Operations Assistant Officer, Adjutant, Adjutant Assistant, Personnel Officer (PersO), Personnel Assistant Officer, Training Officer, Training Assistant Officer, Battalion Drill Master, Battalion Drill Master Assistant, Public Affairs Officer, Public Affairs Assistant Officer, Supply Officer, Watchbill Coordinator, Fundraising Coordinator, Community Service Volunteer Coordinator, Marine PTI, Navy PTI, and Special Operations PTI.
- **Company Billets**:
  Alpha Company Commander (A Cmdr), Alpha Company Executive Officer (A XO), Alpha Company Senior Enlisted (A 1stSgt), Alpha Company Guide, Alpha Company Operations Officer, and Alpha Company Physical Training Instructor (A PTI).

Bravo Company Commander (B Cmdr), Bravo Company Executive Officer (B XO), Bravo Company Senior Enlisted (B Senior Chief), Bravo Company Guide, Bravo Company Operations Officer, and Bravo Company Physical Training Instructor (B PTI).

Charlie Company Commander (C Cmdr), Charlie Company Executive Officer (C XO), Charlie Company Senior Enlisted (C Senior Chief), Charlie Company Guide, Charlie Company Operations Officer, and Charlie Company Physical Training Instructor (C PTI).

Staff Honor Chair
- Platoon Billets: Each Company Platoon (Except Staff): Platoon Commander, Platoon Sergeant, Platoon Guide, 1st Squad Leader, 2nd Squad Leader, 3rd Squad Leader, and 4th Squad Leader.
- Collateral Duty Billets: Aviation Club President, Submarine Club President, Special Warfare Club President, Surface Warfare Club President, Semper Fi Club President, Dining In Coordinator, New Student Orientation (NSO) Coordinator, Mentorship Program Coordinator, Conservation Program Coordinator, Commissioning Ceremony Coordinator, MECEP Sponsor Coordinator, STA-21 Sponsor Coordinator, Pass-In-Review Coordinator, Marine Scholarship Coordinator, Navy Scholarship Coordinator, Intramurals Coordinator, Birthday Ball Coordinator, SORM Coordinator, Battalion Armorer, Colors Coordinator, Drill Team Color Guard Platoon Commander, Drill Team Color Guard Platoon Sergeant, Prolab Coordinator, Recruiting Coordinator, Sea Trails Coordinator, and Water Training Instructor.

Count Cards. An option to export a count card for a given date. The count card will display the date and sort all of the students by assignment identifier, program status, physical status, and last name. Each company will have its own page. This is used by the staff members to have a roster for accountability for formations, they will need to know who is excused, on light duty, or any other necessary information.

Physical Event Score Roster. The PTIs will be able to create a physical event with a custom title. Since each military branch has a different physical test and the tests are subject to have future changes, the scoring rosters should be customizable. Documentation will include the date with option to add multiple exercises for scoring, each exercise will have a customized name. For example: The Marine Options will run a Physical Fitness Test (Title: PFT) which consists of Pull-ups (Event 1: PU), Crunches (Event 2: CR), and a 3-mile Run (Event 3: Run), each exercise has its own score as well as an overall score (sum of all event scores). The roster will include the name and age of all students. Option to populate a roster by individual selection of students or by all students for a service option during that semester.

Weigh-in Event Roster. The PTIs will be able to create a weigh-in event. Weigh-in events will be specific to each service option and will include the student, height (inches), weight, age, status (referenced from weigh-in chart), if status is over/under then a body fat percentage and a BCA status of Pass or Fail will be required. Option to populate a roster by individual selection of students or by all students for a service option during that semester.

Weigh-in Reference Charts. The Administrator will be able to edit the Weigh-in Reference Charts for each service option (Navy or Marine). Each chart will include and be referenced by (in order): Gender, Age, Height, Max Weight, Min Weight.

Messaging Forums. Forums can be created by any user, the user that initiates a forum will be the moderator of the forum. Participants in the forum will be selected by the moderator. Only users that hold a billet and unit staff may be able to select participants by groups, however, all users can select participants individually. For every forum, a thread will be created with a subject title, timestamp, and status (read/unread/muted). The body of the initial message will be the first comment, and all replies will be sequential comments. Each comment can be replied to as a sub-thread. A mark all option should be available to set the status to read/unread or message statuses can be updated individually. Users should also have the option to mute threads.

Mentorship Program. Each student may have a mentor (another student or their OI) assigned to them. Periodically the mentor will sit down with the student and discuss how to be more successful. This session is documented and maintain in the student file. It will include the names of the Protégé and Mentor, that date the session was held, items discussed, and an e-signature from both with a timestamp. The mentor will create the log, with the ability to edit, the Protégé will have view-only access.

Counseling Program. Students may receive a counseling from any senior ranking member at any time. The counseling sessions are required to be documented and include: the name of the counselor and the member counseled, the date, an indicator to identify if the counseling was punitive, details regarding the reason counseled, recommended actions, counselee's comments, and an e-signature from both with a timestamp. The counselor will create the log, with the ability to edit, the member counseled will have view-only access. Acknowledgement and comments will be routed up the student's chain of command up to the OI.

Community Service Tracker. The community service coordinator will create an event for volunteers, in the same manner as event roster, however, he/she will need to maintain a roster of all personnel and the cumulative amount of hours served during that semester. The roster will also need to identify the top 5 and lowest 5 hours separately.

Club Event Tracker. Each club president will create an event for all club events specific to their club, in the same manner as an event roster. Every student is required to attend a minimum of two club events a semester, therefore, a tracker must be included to identify those students with less than two attended events.

Awards Tracker. Multiple times during each semester, awards will be presented to students who deserve to be recognized for outstanding achievements. These awards contribute to the student's evaluation at the end of the semester and should be documented on the student profile page. Awards will be written by the BNCO. The awards will have a presentation date, an award title, the recipient student name, and accomplishment (write up). Since the award will be presented at a later date than the write up, the award should not show up on the student profile page until the presentation date has passed.

Rank: refer to the rank flow-chart below.

Active Duty

Not Active Duty

NROTC San Diego

Unit Staff

Students

USMC

NAVY

Active Duty Students

Civilian Students

USMC

NAVY

Officer Ranks:
O-6: Colonel (Col)
O-5: Lieutenant Colonel (LtCol)
O-4: Major (Maj)
O-3: Captain (Capt)
O-2: 1st Lieutenant (1st Lt)
O-1: 2nd Lieutenant (2nd Lt)

Enlisted Ranks:
E-9: Sergeant Major (SgtMaj)
    or Master Gunnery Sergeant (MGySgt)
E-8: 1st Sergeant (1stSgt)
    or Master Sergeant (MSgt)
E-7: Gunnery Sergeant (GySgt)
E-6: Staff Sergeant (SSgt)

Officer Ranks:
O-6: Captain (CAPT)
O-5: Commander (CDR)
O-4: Lieutenant Commander (LCDR)
O-3: Lieutenant (LT)
O-2: Lieutenant Junior Grade (LTJG)
O-1: Ensign (ENS)

Enlisted Ranks:
E-9: Master Chief Petty Officer (MCPO)
E-8: Senior Chief Petty Officer (SCPO)
E-7: Chief Petty Officer (CPO)
E-6: 1st Class Petty Officer (PO1)

Program: MECEP

Rank Pay Scale (Rate):
E-8: Master Sergeant (MSgt)
E-7: Gunnery Sergeant (GySgt)
E-6: Staff Sergeant (SSgt)
E-5: Sergeant (Sgt)

Note: Some may be Navy
Options. Commissioning as
Navy Officers upon Graduation.

Navy Active Duty Students
Program: STA-21
Note: All are rated as Officer Candidates (OC)
regardless of rank pay scale

Rank Pay Scale:
E-8: Senior Chief Petty Officer (SCPO)
E-7: Chief Petty Officer (CPO)
E-6: 1st Class Petty Officer (PO1)
E-5: 2nd Class Petty Officer (PO2)

Midshipmen (MIDN):
Seniors: 1st Class Midshipman (1/C)
Juniors: 2nd Class Midshipman (2/C)
Sophomores: 3rd Class Midshipman (3/C)
Freshmen: 4th Class Midshipman (4/C)

Chain of Command

Commanding Officer (CO)
O-6

↓

Executive Officer (XO)
O-5

↓

Command Senior Chief (CMDSC)
E-8

Key

Unit Staff
(Permanent Personnel)

Students

Assignment Identifier
[Company] [Platoon] [Squad]

↓

Officer Instructors

Freshmen OI O-3	Sophomore OI O-3	Junior OI O-3	Senior OI O-3	USMC OI O-3

↓

Assistant Marine Officer Instructor
(AMOI)
E-7 or E-8

S00
Battalion Commanding Officer
(BNCO)

↓

S00
Battalion Executive Officer
(BNXO)

S00
Staff Platoon Sgt (Honor Chair)

↓

↓

S00
Battalion Command Master Chief
(BNCMC)

All Battalion Billet Holders

S0 [1,2,3,4]

A00
Alpha Company Commander

B00
Bravo Company Commander

C00
Charlie Company Commander

↓

[A,B,C] 00
Company Executive Officer

↓

[A,B,C] 00
Company Senior Enlisted

↓

[A,B,C] 10	[A,B,C] 20
1st Platoon Commander	2nd Platoon Commander

↓

Platoon Sergeant   [A,B,C] [1,2] 0

[A,B,C] [1,2] 1	[A,B,C] [1,2] 2	[A,B,C] [1,2] 3	[A,B,C] [1,2] 4
1st Squad Leader	2nd Squad Leader	3rd Squad Leader	4th Squad Leader

↓

Member of Platoon   [A,B,C] [1,2] [1,2,3,4]