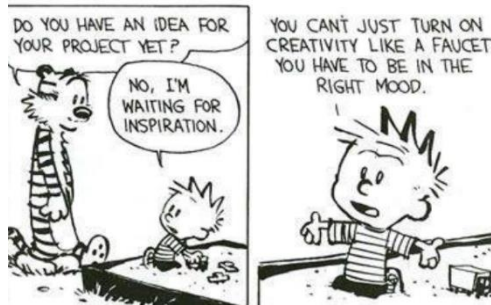# IC470 – Milestone 0:
Identifying a Capstone Topic

**Due date**: as per the syllabus.

But we don't know what we want to do yet!?! Since teams are still settling in on their capstone projects at this point, teams are not bound by what they present for this milestone. For this milestone you should present your best estimate of what your capstone will be based on what you know to date. However, keep in mind that you are free to change focus, Customers, or even the entire capstone topic at any point until you submit Milestone 3 - Part I the formal proposal and which will be approved (or rejected) by a faculty committee. After Milestone 3, teams are committed to the capstone topic unless otherwise directed by your instructor.

Errata/Updates. Any errata or updates to this milestone will be dated and shown in red both as a summary below as well as in the contents of this milestone. Each team is responsible for checking (and delivering their milestone in compliance with) any changes indicated in this Errata/Updates section that are dated prior to the delivery of this milestone.

Summary of Errata/Updates:
23 Aug 2019 – Updated print & style guidance for slides.

- Slides are to be printed out as double-sided handouts with exactly 2 slides per page with the paper in a portrait orientation. See diagram to the right. Additionally, slides <u>must</u> be dark text on a light background.   Light text on a dark background will not be accepted.

- It is recommended that the milestone lead physically check off each of the below items to ensure that all are present and in good order well before the scheduled milestone delivery date.
- See the course web page to determine during which period your Milestone will be presented (all team members in that section will participate in the presentation). Although they won't participate in the milestone's presentation, team members that are not in the same section as the scheduled milestone presentation will nonetheless earn the same grade as the one earned during the presentation period, and are expected to contribute their fair share to the development of the presentation's materials.
- Some important points are highlighted below in blue.
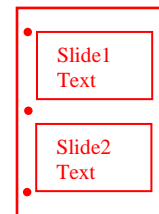
Customer Involvement Alert: See the sections below labeled with "**Customer Involvement Alert**" for details on portions of this milestone for which you will need to schedule a meeting to interact with your Customer and report back on these interactions. Note that:

i. **Lead-time.** It is the team's responsibility to meet with their customer with enough lead time in order to get the required initials and meet published milestone delivery deadlines.

ii. **Availability.** Your customer or technical advisor not being available in the 2 workdays prior to a milestone delivery deadline is <u>not considered a valid excuse</u>, and no delivery delays will be approved in these types of circumstances (this will instead be viewed as a planning shortfall on the part of the team).

iii. **Off-Yard Customers.** Teams with off-yard Customers may attach an email showing their Customer concurrence in lieu of their physical initials.

iv. **Lateness.** All milestones must be delivered in order to pass the course, even the milestones in which a team will earn a 0 due to lateness.

Milestone _____   **Team** _____
(the above filled in by the team)

Deliverables checklist (see below for more info on each of these items). Be prepared to present the below, in order, during your milestone delivery.

— Checklist (a copy of this deliverables checklist sheet)
— Customer's Evaluation Cover Sheet (not required for this milestone (Milestone 0), but take a look at it as it will be required for all subsequent milestones)
— Title, Customer, Technical Advisor
— Team Composition
— Concise Project Overview
— Topical Areas
— Justification (include Growth Areas by Member table)
— Functional Requirements Trace Table
— Required Resources
— Customer Meetings summaries and action items (with lead mid for each action item identified)
— Customer's Current Process
— Customer Acknowledgement (only required for teams whose Customer is not a Computer Science Department faculty member).
— Paper copy of milestone presentation ready at start of period
— Email milestone presentation slides to instructor with subj: Group X, Milestone Z as the subject line

Milestone Deliverables: Paper copies of your slides must be turned in to your instructor *prior* to beginning your oral presentation.

1. **Admin (Administration).**
   a. **Customer's Evaluation Cover Sheet**. Not required for this milestone (Milestone 0), but take a look at the Customer's Evaluation Cover Sheet (see the course Resources page). It will be required to be attached to all subsequent milestones and will impact your milestone grade.
      i. **Milestone Lead:** For all milestones, your team must identify a team member who is tasked with making sure all deliverables set forth in the milestone description are ready to be presented on the due date.
      ii. The Milestone Lead is NOT tasked with accomplishing all the deliverables, but rather serves as the task master to evenly distribute and oversee the workload amongst the team members (including him or herself).
      iii. The Milestone Lead will rotate for each milestone, and no student may serve as the Milestone Lead for a second time until all other team-mates have taken their turn at being a Milestone Lead.
      iv. Each Milestone Lead is tasked with the following (all relative to the milestone being worked on):
         1. Communicating effectively with the group,
         2. Delegation of tasks such that each team member is responsible for their fair share of tasks,
         3. Displaying a positive and productive leadership attitude,
         4. Reviewing delegated tasks in a timely manner so that the milestone delivery contains all required items and that they are all in good order.

   b. **Paper Copies of Slides.** Include a paper copy of all the slides used in your oral presentation, screen captures (or hand-drawn renderings) of your prototypes, to include any user interfaces (UIs), and a copy of the oral presentation grading sheet (available from the course web page) with your team members names filled in. Turn all of these items in to your instructor *prior* to beginning your oral presentation.

2. **Proj Mgnt (Project Management).**

   a. **Title, Customer and Technical Advisor.**
      1. **Title.** Present a short, but snappy, project title (100 character limit – including spaces). You may also include a subtitle if needed.
      2. **Customer and Technical Advisor**. Give the name, phone number, email address and USNA (or other) affiliation of both the Customer you interviewed as well as your technical advisor (you only need a technical advisor if your customer is not a member of the CS Department faculty. If so, your technical advisor must be a member of the CS Department faculty). Note that you *must* have a non-midshipman customer that wants the system and is willing to act as a customer.

b. **Team Composition.**
1. Team Members: Present the names of the team members and their majors (CS, IT, CS/IT (dual major), CE/CS, etc). Note that you MUST have at least 1 CS major and at least 1 IT major on your team. Dual Majors (CS/IT) may count as either CS or IT for this purpose.
2. Team Leader: Indicate the team leader.
3. Team Name: Include an appropriate team name. Your team name must be (perhaps cleverly) related to the core of your project. For example: "Bluetooth Banditz" would likely be appropriate for a team whose project uses Bluetooth connections to breach a system, whereas "Blue Midz" likely would not be an appropriate name for this team. Have fun with this, but keep it professional and in good taste.

c. **Concise Project Overview.** Present a one paragraph description that clearly conveys a high-level view of *what* the project entails. It must be clear enough that someone who was not at the customer interviews and is not familiar with your project can get an understanding of what your proposed project is all about.

d. **Topical Areas**. Present the area(s) of Computer Science or Information Technology this project primarily encompasses (Algorithms, Artificial Intelligence, Database, Forensics, Graphics, Information Assurance, Networking, Computer Security, Robotics, Web Programming, etc). Indicate which team members have the necessary background and expertise to contribute in these areas, and where they acquired these skills from (ie., which courses have they taken or what other preparation (internship) have they had).

e. **Justification.** Present Figure 1 and give a discussion of *why* this project should be considered worthy of being a Capstone Project (be sure to address growth as discussed below).

1. In particular, discuss what NEW concepts the project involves that will make the team members grow in knowledge and learn how to independently find resources, as well as how the project will allow team members to integrate their respective computer science or information technology knowledge.
2. Growth. Note that growing in knowledge does NOT mean that the CS majors on the team will learn about a course required to be taken by IT majors (such as Databases), or that the IT majors on the team will learn about a required computer science course such as Theory of Computing. Rather, growth in the context of your capstone project means that the team as a whole encounters, researches and overcomes new concepts/hurdles not discussed in courses already taken by any of the team members. To put it another way, the entire team as a whole must grow on a topic or topics that no member of the team has ever attempted previously. Your proposal must clearly show this growth on a student by student basis via the below table:
    i. There must be at least 1 growth area for each team member.
    ii. Provide a table (see Figure 1) that clearly identifies and provides a discussion of which growth area(s) pertain to each team member.

Team Member	**Specific growth areas and discussion** (explanation of how growth area goes beyond what was covered in prior courses).
W. T. Door	**Wearable Data Layer Security**. MIDN Door's focus will be on the secure transfer of data between Google Play's Wearable Data Layer API and Android devices. Although he has taken a Mobile OS class, the Wearable Data Layer API goes significantly beyond what was covered in Mobile OS.

Figure 1. Growth Areas by Member

f. Functional Requirements.

Based on your understanding of your potential capstone project at this point, develop and present a two column Functional Requirements Trace Table similar in layout to that shown in Figure 2. In the left column give just <u>one</u> functional requirement (something your system must do) that you feel will be <u>one of the more challenging parts</u> of your project. Note that the example in Figure 2 would not likely be considered one of the more challenging parts of a capstone project.

1. The functional requirement you identify must be measurable, testable, related to identified customer needs, and defined to a level of detail sufficient for subsequent system design.
2. In the right column, give two Acceptance Test Plan test cases (one *normal* and one *abnormal*), that can be <u>objectively validated.</u>
3. As your project progresses, these test cases will be used to objectively show whether or not the operational system indeed meets the indicated Functional Requirement. Recall that a *normal* test case demonstrates that the system meets all (or part) of the indicated function requirement, while an *abnormal* test case gives the system response to an unexpected (but possible) system state (such as invalid user input).
4. Do not include "Not Useful" test cases which describe a state that the properly running software cannot be placed in.
5. See Lab 1 for a discussion of normal, abnormal and not useful test cases.

Functional Requirement	**Acceptance Test Plan test cases** (Set of scenarios that, in total, show that the Functional Requirement has been met. Includes both normal and abnormal uses of the system. Clearly distinguish between normal and abnormal test cases by identifying them as shown below.)
1. Login/Password GUI: Each user must have their own login/password pair that sets their User Role within the system.	1.1 User with correct login/password is able to successfully log in to system and is given the User Role associated with the login/password pair. (*normal*) 1.2 User attempts login with the wrong password, and is prevented from logging in. (*abnormal*)

Figure 2. Functional Requirements Trace Table

g. **Required Resources.**
   1. Present what external resources (hardware, software, MySQL, etc) your team needs in order to complete the project (beyond those resources already found in the CS Department labs).
   2. Present your backup plan for the event in which the resources cannot be acquired due to funding constraints.

h. **Customer Meeting Summaries. Customer Involvement Alert =>** Each team is to

   1. Arrange a time during which the entire team can meet with the Customer. For off-Yard Customers, this can be a conference call, Gmail Meetup, Google Hangouts, etc.
   2. Take notes at the Customer meetings,
   3. Prepare a summary of what was discussed at each Customer meeting to include a list of all action items,
   4. For each action item, identify which team member is the lead on getting the action item resolved,
   5. Have your Customer initial the summary to signify the Customer's concurrence with what transpired at the meeting. Alternatively, you may email your Customer each meeting summary, and have them give their concurrence via email. Include this email exchange in your presentation.
   6. In your milestone delivery, include and present all meeting summaries for meetings that have occurred since the last milestone delivery. Include the date for each meeting as well as the names of everyone present at each meeting.

i. **Customer's Current Process**. **Customer Involvement Alert**: Present a detailed description of the process by which your customer currently accomplishes the functionality they need to have in the system you are developing (even if the mechanism through which they currently accomplish their objectives is mostly manual, ie., paper and pencil). Get, scan in or otherwise attach sample copies of any forms, spreadsheets or program input/output your customer uses in their current process. If there is no current customer process, simply state that this is a new system and describe why the customer wants the system created.

j. **Note**: Keep track of (but do not present) how much time each team member spent working on this milestone, and what that time was spent doing. You will need this information for Milestone 1.

k. **Customer Acknowledgement**: **Customer Involvement Alert**: For teams whose customer is not a USNA Computer Science Department faculty member, include your customer's signature on enclosure (1) of COMPSCIDEPTINST 1520.1E (given below).

Notes:
- Each team is to be fully ready to go at the beginning of the presentation period to include handing in a paper copy of all slides and GUI screen shots used in the presentation/software demonstration. Also, each team is to turn in a copy of the oral-presentation grading sheet (available from the course web page), with your team members' names filled in, at the *start* of the period *prior* to beginning your oral presentation. You will have a maximum of 15 minutes to complete your presentation.
- Any team not ready to hand in their paper copies of the above, or to deliver their presentation/demonstration when called upon, will have 10 points deducted from their presentation grade and will go to the end of the presentation cycle for that day. Presentations not delivered during class on the due date will earn a grade of zero, but will still have to be completed and turned in to receive a passing grade for the course. Each team member must participate in all portions of the term project, including *each* oral presentation.

Computer Science Department Capstone Customer Acknowledgement
Required for teams whose customer is not a member of the USNA Computer Science Department

By signing below, the customer acknowledges that the project developed as part of this capstone coursework becomes the property of the DoD, and that the CS Department does not assume any responsibility for maintaining the software produced for the client. The client may use the software within the context of their DoD affiliation, and may not distribute it without approval from the USNA legal office.

Capstone Team Leader Name_____

Capstone Project Title _____

Customer Name (printed) _____

Customer Contact Info (email/phone) _____

Customer Affiliation _____

Customer Signature _____

Date_____