COMP1511 PROGRAMMING FUNDAMENTALS

LECTURE 16

Let's keep the FIFA problem going

Exam Information

LAST TIME...

- Multi-files
- FIFA World Cup example

FOR OUR FINAL WEEK...

- Exam info!
  - Format
  - Preparation
  - Hints and tip
- Continuing the FIFA World Cup Example

“

WHERE IS THE CODE?

Live lecture code can be found here:

HTTPS://CGI.CSE.UNSW.EDU.AU/~CS1511/22T3/LIVE/WEEK10/

COURSE FEEDBACK

my Experience surveys

http://myexperience.unsw.edu.au/

THE EXAM

WHAT IS IN IT?

- Everything that we have learnt so far
  - Lots of focus on:
    - Simple IF statements and WHILE loops
    - Variables: int, double, char, structs
    - Strings
    - Arrays
    - Pointers
    - Linked Lists

THE EXAM

TIME/DATE

- Date: 28th November

- There will be two sessions of the exam. The students sitting the exam in the afternoon will be corralled for a period of twenty-thirty minutes as we conduct the changeover. The exam will be in different CSE lab locations, and you will be given a seating arrangement closer to the date of the exam, so you know where you need to be and at what time. The sessions are:
- Morning: 10:15-13:30
- Corralling: 13:20-13:55 (although arrive at 13:20, corralling doors can close at 13:30)
- Afternoon: 13:55-17:10

THE EXAM

- The lab NEXT week will provide you with a test environment that will be similar to your exam - this will allow you to familiarise yourself with the setup
  - Give is the same as in your labs/weekly tests
  - Autotests are run the same way etc
  - Submit as many times as you want - only last submission will be marked

THE EXAM

EXAM HURDLES

- There’s an array hurdle, question 1 or 3
  - You must earn a mark of 50% or more in at least one array hurdle question
- There’s a linked list hurdle, question 2 or 4
  - You must also earn a mark of 50% or more in at least one linked list hurdle question

THE EXAM

EXAM CONDITIONS

- ”Open book”
- Exam conditions still apply!!!
  - Do not communicate with anyone about the exam within 24 hours of the exam start time - this is considered plagiarism
  - NO EXTERNAL HELP - you cannnot ask questions online or in discussion groups - we will be monitoring this and the exam is invigilated
  - No discussion of the exam or sharing your code with anyone except for COMP1511 staff

THE EXAM

- If you experience any issues during the exam, please raise your hand and wait for an invigilator.

THE EXAM

- When you come into the room and seat yourself, there will be instructions provided to you how to start the exam
  - We personalise the papers, so your paper may be different to that of someone else.
  - The command needed to fetch your exam. You will use a similar command in your practice exam to get you used to the process:

THE EXAM

FIT TO SIT

Fit to Sit Policy:
https://www.student.unsw.edu.au/exam-rules

By sitting the exam on the scheduled assessment date, you are declaring that you are fit to do so and cannot later apply for Special Consideration.

THE EXAM

FIT TO SIT

If, during an online exam you feel unwell to the point that you cannot continue with the exam, you should take the following steps:

- Stop working on the exam and take note of the time
- If you are in person, please raise your hand and let the invigilator know you are unwell.
- If you are an offshore student sitting the exam online, you must contact us immediately via email at cs1511.exam@cse.unsw.edu.au
- Immediately submit a Special Consideration application saying that you felt ill during the exam and were unable to continue
- You must provide a medical certificate dated within 24 hours of the exam, along with screenshots of the conversation you have had with us

THE EXAM

SUPP EXAM

- If you are granted special consideration based on the Fit to Sit university policy, a supplementary exam will be held during O-Week of T1 2023. If you think you will need to sit this exam, make sure you are available.
- Fit to Sit Policy: https://www.student.unsw.edu.au/exam-rules

THE EXAM

WEEK 11 REVISION CLASSES

In Week 11, we will be running some revision classes.

Registration and details will be announced soon...

THE EXAM

CSE SOC
1511 EXAM PREP 'N' CHILL

CSESoc is running a COMP1511 Exam Prep 'n' Chill for you to practice your coding and prepare for your exam! There will be unseen practice problems for you to work through together with your fellow students or at your own pace. And if you would rather take a break during this overwhelming time, still come along for free pizza, donuts, and good vibes!

Event details as follows:

When: Wk9 Friday 11th Nov 4-7pm

Where: J17 Lv5 Design Next Studio + Online

Facebook event link: https://fb.me/e/2SyGgHEHh

THE EXAM

WEEK 10 - FLIPPING THE CLASSROOM

In Week 10 Lecture slots, we will be flipping the classroom! This means, we will have a series of problems that will be available for you to work through - and you will vote on problems that we will pseudocode and solve together and then also have time to work on problems in small groups.

When: Monday 11-1pm lecture
Where: CSE Seminar Room 113

When: Wednesday 10-12pm lecture
Where: Tyree LG05

THE EXAM FORMAT

The format of the exam will be:

- 20 Short Answer Questions (1 mark each)
  - They require you to understand what pieces of code are doing, interpreting code, interpreting diagrams, etc.
  - Examples are in the Week 10 prac exam
- 7 Practical Questions (10 marks each)
  - Programming questions
  - Similar in style to the questions you did in your problem sets, revision exercises
  - These are also rated to give you an idea of how difficult each question is.
- We hope that everyone can attempt and complete the first four questions

THE EXAM

SHORT ANSWER QUESTIONS

Short Answer Questions

Number of questions: 20

Marks: 1 mark each (total of 20 marks)

- These questions will be about whether you understand core coding concepts and the C programming language
- Your answers will either be multiple choice or short answers
- Some are: ”What will this code do?” (think of those kahoots)
- Some are: ”How does this concept work?”
- Some examples are in the Week 10 Prac Exam

THE EXAM

SHORT ANSWER QUESTIONS

- The Short Answer Questions will be in a link in your fetched exam paper. This link will take you to an online Ed Classroom, with the questions there for you to answer.
- You will be able to change your answers multiple times throughout the exam to these short answer questions.
- Some of them will be multiple choice and some will be short answer format.

THE EXAM

PRACTICAL QUESTIONS

Practical Questions

Number of questions: 7

Marks: 10 mark each (total of 70 marks)

- Questions are similar to the Revision Exercises and Problem Sets
- Stages of difficulty from basic to very hard (will be marked in the same rating system as your problem sets)
- Some will have provided code as frameworks
- Each question will need to be written, compiled and tested
- You will have access to autotests (but they're just tests!)
- Harder questions will have less autotests
- There will be no specific style marking, so you don't need to explain your code in comments

THE EXAM

PRACTICAL QUESTIONS

- When you fetch your exam in the beginning, it will also copy over any starter files you may need for the practical questions.
- Read all the questions before starting
- Start with the easier questions
- Prepare! A couple of minutes thinking and drawing a diagram will clarify how you're going to approach a question
- Use your problem set/revision practice! Debugging and testing will be important here
- Less questions answered completely is better than more questions partially answered

THE EXAM

PRACTICAL QUESTIONS

QUESTION 1 AND QUESTION 2

These are: 

- Similar to Practical test question 1 or 2
- Question 1 is an array hurdle
- Question 2 is a linked list hurdle

- Tests your ability to:
  - Create simple C programs
  - Use variables (int, double, char)
  - Use scanf and printf
  - Use IF statements and WHILE loops
  - Use of simple structs
  - Use of arrays of int/double/struct in Q1
  - Use of linked list of ints/doubles (no insertion or removal of nodes) in Q2

THE EXAM

EXAMPLE QUESTION 1

- Loop through an array of structs and gather some kind of information

Given an array of structs, where each struct is:

```
struct direction {
    int number;
    char dir;
};
```

Print out the total of the number of steps taken in a specific direction. So for example, if direction is 'l', find all the structs with direction as 'l' and add the numbers in those structs up. Edit the function

```
int total (int size, struct direction array[MAX])
```

THE EXAM

EXAMPLE QUESTION 2

Perform some computation on a linked list

Given a linked list, print the largest value in that list

Edit the function

```
int largest (struct node *head)
```

THE EXAM

PRACTICAL QUESTION 3 AND QUESTION 4

These are: 

- Similar to Practical test question 4
- Question 3 is an array hurdle
- Question 4 is a linked list hurdle

If you have answered Q1 and Q2, this means that you have already passed the hurdles of the exam

- These are harder applications of the hurdles
- You will need to know everything from Q1 and Q2, in addition to:
  - Looping through more than once (maybe)
  - Some insertion/removal of nodes in Q4
  - Testing more difficult conditions and keeping track of more than one thing.

THE EXAM

PRACTICAL QUESTION 5 AND QUESTION 6

These are: 

- Harder manipulation of arrays (Q5)
  - Possibly fgets or string manipulation
- Manipulate linked lists (adding and removing items etc) (q6)
  - Potentially use malloc() and free() with structs and pointers
- Again, more complex combinations, and some questions requiring interesting problem solving

THE EXAM

PRACTICAL QUESTION 7

COMBINATION OF:

●●● 

This one: ●●● and 

- For those aiming for a HD mark
- Everything taught in the course might be in these questions
- Think ” Exercises”, even some of the hard ones!
- Will also test your ability to break a problem down into its parts
- The Prac Exam has an example of past Question 7 so you can see the difficulty level
- Partial completion of this question will award some marks

THE EXAM

WHAT SHOULD I STUDY?

The basics are important!

- Know how to use both arrays and linked lists
- Go back and do the problem sets if you haven't already
- The revision exercises on the course webpage are also very useful

- Variables, Structs, enums, IF, Looping, Functions, Arrays, Linked Lists are very important to understand!
- You will need to have some understanding of Strings, Pointers, and Memory Allocation to be able to work successfuly with char arrays, and linked lists

THE EXAM

MARKING

- Most of the marking will be automated
- Make sure your input/output format matches the specification
- Answers for hurdles will also be checked by hand
- Marks will be earnt for correct code, not for passing autotests
- Minor errors, like a typo in an otherwise correct solution, will only result in a small loss of marks

THE EXAM

YOU'VE GOT THIS

- Whilst some parts of the exam (the later questions) have been designed to be very challenging, you do not need to complete them to be successful in getting a great mark in this subject
- Make sure you breathe!

THE EXAM

YOU'VE GOT THIS

- When you are struggling to understand a question (particularly linked lists) = DRAW DIAGRAMS!
- Go over your problem sets and revision questions for extra practice.
- Revision classes will be run in Week 11 - details coming

BREAK TIME...

How are you all doing?

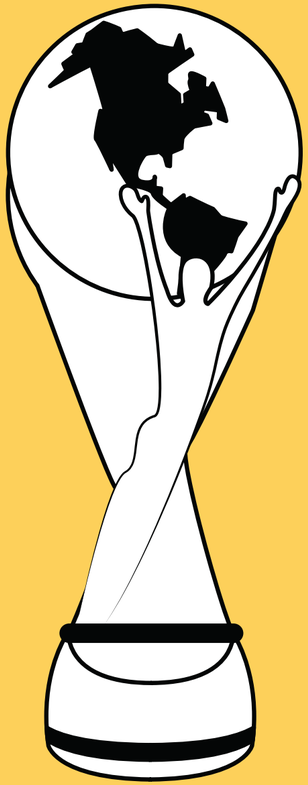
Are you doing anything fun once the first term is over?

Are you excited to be in computing and to continue to build your knowledge further?

LINKED LIST - ALWAYS THINK ABOUT!

- Some special boundary conditions that you need to consider when you manipulate lists:
  - Empty list
  - List with 1 element
  - Something happening at the beginning of the list
  - Something happening at the end of the list
  - Something will not occur, the item is not in the list (inserting after a number that doesn't exist etc)

LECTURE PROGRAM



It’s a FIFA World Cup in just a few weeks (Huzzah!)

To celebrate, I want to be able to keep track of who is on the Australian team by adding players to the list as they get added to the lineup. I will then use the list to keep track of who has been knocked out due to injuries, who has been carded, and who is still playing.

LECTURE PROGRAM

So:

- I need to create a list, to which I can add all the participating players (initialise)
- I want then to have all the players for each country and separately a list of injured players (a player name/number/etc)
- I want to be able to print out this list (p)

- I want to be able to ”knock” players out of the competition (d player name)

LECTURE PROGRAM

This is the structure I am provided:

```c
enum card_type {NONE, GREEN, YELLOW, RED};

struct fifa {
    char country[MAX_COUNTRY_LENGTH];
    struct player *players;
    struct injured_player *injured_players;
};

struct player {
    char name[];
    int number;
    enum card_type type;
    struct player *next;
};

struct injured_player {
    struct player *player;
    char name[];
    int number;
    int length_of_time_out;
    struct injured_player *next;
};
```

LECTURE PROGRAM

There is also some starter code (just like in your assignment!). Your job is to:

Add player with ’a’ command by typing:
a first_name last_name card_type

Print out the list with ’p’ command

Update card status with ’c’ command by typing:
c first_name last_name

Delete a player with ’d’ command by typing:
d first_name last_name

WHAT DID WE LEARN TODAY?

EXAM

Details, details, details!

FIFA

fifa.c

REACH OUT

CONTENT RELATED QUESTIONS

Check out the forum

ADMIN QUESTIONS

cs1511@unsw.edu.au