Name

ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?

a) = 2 choice < soup, juice

b) = 3 choice < meat, fish, vegetable

c) = 2 choice < ice cream, cake

possible choices = $2! + 3! + 2!$

$= 10$

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

$P_b = \frac{2!}{5!} = \frac{2 \times 1}{5 \times 4 \times 3 \times 2 \times 1} = \frac{2}{120} = 0.0167$

and there are: $\frac{5!}{2!} = 60$ ways to select

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

```
int Count = max
    if Count = 0
        return 0;
    else count++
        cout << " int data" << max <<n;
```

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

I Know how to solve it but I forgot.

(this is one of Searching function as we learned in chapter 12. assignment #6.)

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

just another skept data output by odd number
1 - 3 - 5 - 7 - - - - or 2 - 4 - 6 .
as we learned so far
I know how to solve it but I forget here.

Name

ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?

Permutation 7 pick 3

210

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

combonation 5 pick 2

10

$\frac{2}{5} \times \frac{1}{4} = \frac{2}{20} = \frac{1}{10} = 10.1$

3. Give an algorithm that finds and returns the largest element in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

I knew how to solve this but I forgot.

runtime:

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

linked list?

```
if(number = n)
  & return n;
}
else{
return n->next;
}
```

runtime: constant (linear)

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

ADT: char (string) ×

Structure: matrix ×

Name

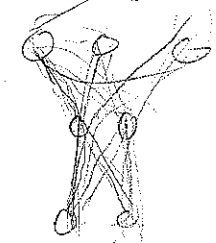
ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?



12 ✓

1 2 3 4 5 6 7 8 9 10

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

1 2 3 4 5

1) 16 different ways to select 2 balls ✗

4 + 4 + 4 + 4

2) $\frac{2}{5}$ ✗

Student 3

1 2 3 4 5

n-1

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

```
int n;
n=5
if(n =! null)
return n;

return n-1;
```

+1
+1

n+1

+1

X

n^2

n+4

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

i knowhow to do this but forgot

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

i don't know
how to solve it.

Name

ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it, I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?

appetizer
juice soup

main dish
fish, meat, vegetables

dessert
cake, ice cream

juice, fish, cake, or juice, fish, ice cream
juice, meat, ice cream or juice, meat, cake
juice, vegetables, cake or juice, veggies, ice cream
soup, fish, cake or soup, fish ice cream
soup, meat, ice cream or soup, meat, cake
soup, veggie, ice-cream or soup, veggie, cake

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

1
2
3
4
5

- 20 different ways
- 1 out of every 5 times will 1 and 2 be selected

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

I can't remember

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

I know how to solve it, but I forgot

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

I know this but cant remember

Name

ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?

$2 \cdot 3 \cdot 2 = 12$ ✓

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

5 choose 2 : 1,2 2,3 3,4 4,5 9 ✗
1,3 2,4 3,5
1,4 2,5
1,5

Probability:

$\frac{1}{5} \cdot \frac{1}{4} = \frac{1}{20}$ ✓

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

```
imax = 0;
for i=0; i<listsize; i++
    {
      if ( list[i] > max)
        {
          max = list[i];
        }
    }
Cout << "Max: " <<max <<endl;
```

run time

1

n = listsize

n = list size

y = # of elements larger than max (no more than n)

1

2n + 2+y run time

or

3n + 2 max run time

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

```
n=0;
int find (item, list, n)
    {
      while (list[n])
        {
          if (list[n] == item)
            return 1;
          else
            return find(item, list, n+1);
        }
      return 0;
    }
```

n

n

n

3n · # of recursions

returns 1 if found
0 if not

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

X

1 3 5
2 4 6

use a 2 dimensional array to store values.

✓

Name

ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?

$2 \times 3 \times 2 = 12$ ✓

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

$5 \times 4 = 20$ ✗

They are 20 ways to select two balls from the bottle

$(1/5) * (1/4) * 2 = \frac{1}{10}$

The probability is 1/10 ✓

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

```
max := 0;
While (ptr != 0)
{
   if (ptr->data > max)
        max := ptr->max;
   ptr := ptr->nextPtr;
}
```

Running time is O(n)

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

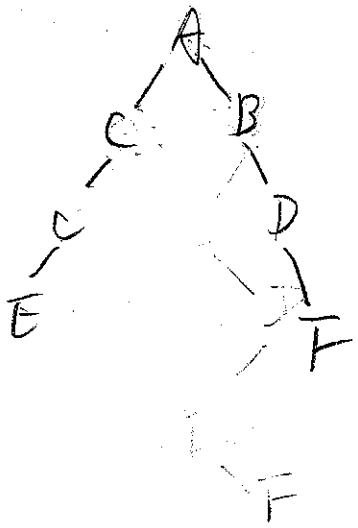
```
int search_func (ptr *List, int t, num int)
{
   if (ptr->data = t)
        return num;
   else if (num<n)
        search_func (ptr->nextPtr, t, num+1);
   else
        return -1;
}
```

Running time is O(n).

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

We can use binary tree to implement this algorithm by putting odd number character on the left node of the tree and the even number character on the right node of the tree like

A B C D E F



Name :

ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?

Soup / juice
meat / meat
ice cream / cake

Soup / juice
Fish / fish

soup / juice
veg. / veg.

12

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

There are 20 different ways to select 2 balls.

2:5 probability.

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm. If see an example know exactly how to do it, but forgot.

(2) (0) (5) (10)

```
int n;
If n > 5
then n=b
Cout>>"b:"<<b;
endl;
```

Runtime: n ✓

✗

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

```
int n;
Search==
n=
```

Now deals with linked lists and list.

So, for this problem I have done and know how to do it, but forgot

✗

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

The abstract data type used would be ...

data structure ...

know how to do, but Forgot

Name

ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?

$2^2 + 3^2 + 2^2 = 4+9+4 = 17$ possibilities

X

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

$5^2 = 25$ ways to select a ball X

The probability that balls numbered 1 and 2 are selected would be $\frac{2}{25}$ chances X

Student 8

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

```
if n = largest value        = n
return                      = 1+n

else                        = 1+n
  search for largest number = n
return();                   = 1
```

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

```
if n = specified value          = n
  return;                       = 1+n

else                            = 1+n
  search for specified value;   = n

return();                       = 1
```

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

I would use recursion to complete this program and would use a class structure in this program.

Name

ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?

12 ✓

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

a) 10 ✓

b) 10% (But only if they want to be stated) ☺ haha

✓

3. Give an algorithm that finds and returns the largest element in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

Set array size	1
populate array (make worst case & put @ end)	1+n
search for large #	1+n
display	1
	4+2n

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

Set up array	1
populate array 'n'	1+n
use circular loop to link last to first	1
Set variable to look for "var"	1
if n = var	1
stop & return the value	1
if n ≠ Var	1+n
step through n+1 until end	n
Stop when n = 0	1
	8+3n worst case
	6+n best case

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

Know this, but forgot ... will review for final

Name

ECE 231 Fall 08

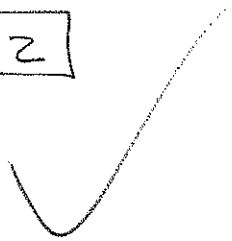
Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?

2 · 3 · 2 = 12



2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

5 · 4 = 20 ways X

$\frac{1}{5} \cdot \frac{1}{4} = \frac{1}{20}$ chance

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

```
int findmax(int n, [] b)
{ int max = b[0];
  for(int i=0; i<n; i++)
    {
      if(b[i] > max)
        max = b[i];
    }
  return max;
}
```

I don't remember how to calculate running time

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

```
// searching for the index at which a value occurs: index starts ∅
int search(int data, [] b, int index)
{
  if(b[index] == data)
    return 1;
  else
    return 1 + search(data, b, index+1);
}
```

I don't remember how to calculate running time

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

a recursive structure would be used to read in each character and to print each character, the first line would be printed immediately and the second line would have its data stored in a stack to print out after the recursive call; it could be done using a linked list ✓

Name

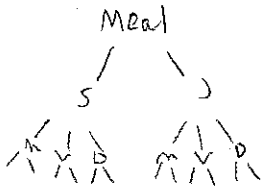
ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?



12 different combinations of meals

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

1-5

5 balls

20% chance of selecting a particular ball

15 different ways to select two balls

probability of 2 specific balls being selected

(.20%)·(20%)

= .2·.2

= .04 or 4% chance of having two specific balls selected

1	11
2	12
3	13
4	14
5	15
6	22
7	23
8	24
9	25
10	33
11	34
12	35
13	44
14	45
15	55

Student 11

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

```
#include <stdlib.h>
#include <stdio.h>

int main (void)
{
   int list[n];

   for (i=0; n≥i; i++)
   {
```

I know how to solve this, but I am hitting a mental block

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

I am very bad at recursion

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

I don't know. It may be overthinking the problem

Name

ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?

36 choices ×

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

12 23 34 45
13 24 35
14 25
15

10 ways ✓

2:10 = 1:5 ×

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

I don't know how to solve it.

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

I don't know how to solve it.

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, sixth character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

I know how to solve it but I forgot.

Name (

ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?

18 choices ×

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

I know how to solve it, but I forgot.

10 diff ways to select 2 balls ✓

Probability of selecting 1 & 2 is 1:10 ✓×

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

I don't know how to solve it. for Running time

I Know how to write the algorithm but forgot

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

I don't Know how to solve it for Running time

I Know how to write the program, but forgot.

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

Lists
Recursion

Name

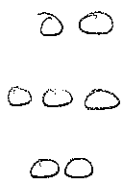
ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?



$2 \times 3 \times 2 = 12$

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

$\frac{2}{5}\,5! = 48 \Rightarrow \frac{48}{5} \times 2 = 19.2\%$

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

```
Void sort (array)
{
  if (array[i], array[i+1], i ++)
     temp = element a;
     element  = element ;
     element b = temp;
  else
     sort
}
```

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

I know how, but forgot

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

main will be used to implment

iostream ADT will beused in implimentation

Name

ECE 231 Fall 08

Knowledge Probe Quiz

This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?

2 x 3 x 2 = (12) ✓

2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?

20 different ways X

1:20 probability ✓

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

```
NodePointer ptr = myList.front(), max;        Runtime
int x=1;                                      1
while( x <= n){                               n+1
  if(ptr->data > max->data)                   n
    max = ptr;                                (dependent on data)
  else
    ptr = ptr->next;
  x++;                                        1
}
return max
```

Runtime = $2n+3+$

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

```
- Specified value sVal;
//can be any data type
list myList;
NodePointer ptr = myList.front
bool search(int n){
  if(n>=0)
    if(
```

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

Name

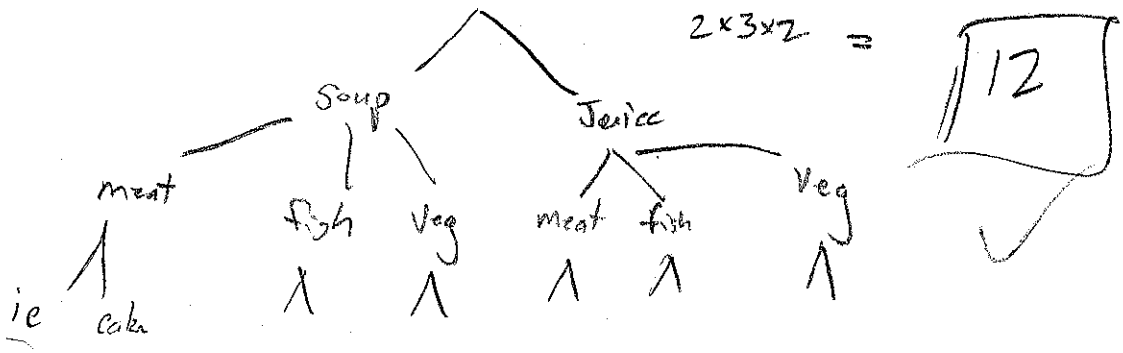
ECE 231 Fall 08

Knowledge Probe Quiz

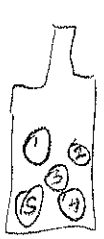
This quiz will count as part of your grade in this class. It is being administered in order to determine the current state of your knowledge. The results will be used to access how our curriculum is preparing you, and may factor in future curriculum changes.

For each question you may answer **I don't know how to solve it**, **I know how to solve it, but I forgot**, or **write your answer directly**.

1. You are eating at a restaurant and the waiter informs you that you have (a) two choices for appetizers: soup or juice; (b) three for the main dish: a meat, fish, or vegetable dish; and (c) two for dessert: ice cream or cake. How many possible choices do you have for your complete meal?



2. A bottle contains five balls numbered 1–5. How many different ways are there to select two balls from the bottle? If two balls are selected at random, what is the probability that the balls numbered 1 and 2 are selected?



10 possible ways

$\left(\frac{1}{5}\right)\frac{1}{4} = \frac{1}{20}$ = 5% chance of getting 1 and 2

3. Give an algorithm that finds and returns the largest elements in a list of n elements, using peudocode or C++ programming language, And analyze the running time of your algorithm.

```
h=0;                    1
j=0;                    1
for(i=0, i≤n, i++)      n+1
{ j=list[i];            n
  h=list[i+1];          n
  if(h>j)               n
    m=h;                n
  else
    m=j;                n
}                       1
return m;               1
```

$6n+4$

4. Write a program, using pseudocode or C++ programming language of your choice, to solve the problem of searching a specified value item recursively in a list with n numbers as inputs. And analyze the running time of your algorithm.

$O(4n+8)$

```
Search (Array, value, n)                          1
{ int * Array2;                                   1
  if (Array[n/2] > value)                         n/2 + 1
  { for (i=n/2; i≤n; i++)                         n/2
    { int j=0;                                    n/2
      Array2[i] = Array[i];                       n/2
      j++;                                        n/2
    }
    Search (Array2, value, j);                    1
  }
  else if (Array[n/2] < value)                    1
  {
    for (i=0, i≤n/2; i--)                         n/2 + 1
    { int j=0;                                    n/2
      Array2[i] = Array[i];                       n/2
      j++;                                        n/2
    }
    Search (Array2, value, j);                    1
  }                                               ---
  else return Array[n/2];                         4n + 7
                                                  1
```

5. If you are asked to design an algorithm that reads a sequence of characters, then prints the first character, third character, fifth character, and so on in one line. On a second output line, the algorithm prints the second character, fourth character, six character, and so on. Specify what ADT will be used in your algorithm and what data structure will be used to implement the ADT?

ADT - char

data structure - Array