AP Computer Science Principles

Period	Time
1	12:49pm – 1:10pm
2	1:14pm – 1:35pm
3	1:39pm – 2:00pm
4	2:04pm – 2:25pm
5	2:29pm – 2:50pm

AP Exam Review

Class 136
May 4, 2023
Mr. Miller

Do Now in Google Classroom!

Do Now!

A program contains the following procedures for string manipulation.

Procedure Call	Explanation
Concat (str1, str2)	Returns a single string consisting of str1 followed by str2. For example, Concat("key", "board") returns "keyboard".
Substring (str, start, length)	Returns a substring of consecutive characters from str, starting with the character at position start and containing length characters. The first character of str is located at position 1. For example, Substring ("delivery", 3, 4) returns "live".

Which of the following expressions can be used to generate the string "Happy"?

(A)   Concat (Substring ("Harp", 1, 1), Substring ("Puppy", 2, 4))

(B)   Concat (Substring ("Harp", 1, 2), Substring ("Puppy", 3, 3))

(C)   Concat (Substring ("Harp", 1, 2), Substring ("Puppy", 4, 2))

(D)   Concat (Substring ("Harp", 2, 2), Substring ("Puppy", 4, 2))

2

Do Now!

A program contains the following procedures for string manipulation.

Procedure Call	Explanation
Concat (str1, str2)	Returns a single string consisting of str1 followed by str2. For example, Concat("key", "board") returns "keyboard".
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Which of the following expressions can be used to generate the string "Happy"?

H   uppy

(A)   Concat (Substring ("Harp", 1, 1), Substring ("Puppy", 2, 4))   ⇨   Huppy

(B)   Concat (Substring ("Harp", 1, 2), Substring ("Puppy", 3, 3))

(C)   Concat (Substring ("Harp", 1, 2), Substring ("Puppy", 4, 2))

(D)   Concat (Substring ("Harp", 2, 2), Substring ("Puppy", 4, 2))

3

Do Now!

A program contains the following procedures for string manipulation.

Procedure Call	Explanation
Concat (str1, str2)	Returns a single string consisting of str1 followed by str2. For example, Concat("key", "board") returns "keyboard".
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(A)   Concat (Substring ("Harp", 1, 1), Substring ("Puppy", 2, 4))

Ha   ppy

(B)   Concat (Substring ("Harp", 1, 2), Substring ("Puppy", 3, 3))   ⇒   Happy

(C)   Concat (Substring ("Harp", 1, 2), Substring ("Puppy", 4, 2))

(D)   Concat (Substring ("Harp", 2, 2), Substring ("Puppy", 4, 2))

4

Do Now!

A program contains the following procedures for string manipulation.

Procedure Call	Explanation
Concat (str1, str2)	Returns a single string consisting of str1 followed by str2. For example, Concat("key", "board") returns "keyboard".
Substring (str, start, length)	Returns a substring of consecutive characters from str, starting with the character at position start and containing length characters. The first character of str is located at position 1. For example, Substring ("delivery", 3, 4) returns "live".

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(B)   Concat (Substring ("Harp", 1, 2), Substring ("Puppy", 3, 3))

Ha   py

(C)   Concat (Substring ("Harp", 1, 2), Substring ("Puppy", 4, 2))   ➡   Hapy

(D)   Concat (Substring ("Harp", 2, 2), Substring ("Puppy", 4, 2))

5

Do Now!

A program contains the following procedures for string manipulation.

Procedure Call	Explanation
Concat (str1, str2)	Returns a single string consisting of str1 followed by str2. For example, Concat("key", "board") returns "keyboard".
Substring (str, start, length)	Returns a substring of consecutive characters from str, starting with the character at position start and containing length characters. The first character of str is located at position 1. For example, Substring ("delivery", 3, 4) returns "live".

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(B)   Concat (Substring ("Harp", 1, 2), Substring ("Puppy", 3, 3))

(C)   Concat (Substring ("Harp", 1, 2), Substring ("Puppy", 4, 2))

                       ar   **py**

(D)   Concat (Substring ("Harp", 2, 2), Substring ("Puppy", 4, 2))   ➡ **arpy**

6

Do Now!

A program contains the following procedures for string manipulation.

Procedure Call	Explanation
Concat (str1, str2)	Returns a single string consisting of str1 followed by str2. For example, Concat("key", "board") returns "keyboard".
Substring (str, start, length)	Returns a substring of consecutive characters from str, starting with the character at position start and containing length characters. The first character of str is located at position 1. For example, Substring ("delivery", 3, 4) returns "live".

Which of the following expressions can be used to generate the string "Happy"?

(A)   Concat (Substring ("Harp", 1, 1), Substring ("Puppy", 2, 4))

Ha   ppy

(B)   Concat (Substring ("Harp", 1, 2), Substring ("Puppy", 3, 3))   ➡ Happy

(C)   Concat (Substring ("Harp", 1, 2), Substring ("Puppy", 4, 2))

(D)   Concat (Substring ("Harp", 2, 2), Substring ("Puppy", 4, 2))

7

Another tricky Q from 2020 exam

Consider two lists of numbers called `list1` and `list2`. A programmer wants to determine how many different values appear in both lists. For example, if `list1` contains [10, 10, 20, 30, 40, 50, 60] and `list2` contains [20, 20, 40, 60, 80], then there are three different values that appear in both lists (20, 40, and 60).

The programmer has the following procedures available.

Procedure Call	Explanation
Combine (myList1, myList2)	This procedure creates a new list containing the elements from myList1 followed by the entries from myList2. The resulting list is returned. For example, if myList1 contains [2, 4, 6] and myList2 contains [1, 5], the procedure will return the list [2, 4, 6, 1, 5].
RemoveAllDups (myList)	This procedure creates a new list containing the elements of myList with any duplicate values removed. The resulting list is returned. For example, if myList contains [3, 2, 4, 2, 2, 5, 6, 4], the procedure will return the list [3, 2, 4, 5, 6].

Which of the following can be used to assign the intended value to `count`?

Strategy: WRITE IT OUT!

(A)
```
bothList ← Combine (list1, list2)
uniqueList ← RemoveAllDups (bothList)
count ← LENGTH (bothList) - LENGTH (uniqueList)
```

(B)
```
newList1 ← RemoveAllDups (list1)
newList2 ← RemoveAllDups (list2)
bothList ← Combine (newList1, newList2)
count ← LENGTH (list1) + LENGTH (list2) - LENGTH (bothList)
```

(C)
```
newList1 ← RemoveAllDups (list1)
newList2 ← RemoveAllDups (list2)
bothList ← Combine (newList1, newList2)
count ← LENGTH (newList1) + LENGTH (newList2) - LENGTH (bothList)
```

(D)
```
newList1 ← RemoveAllDups (list1)
newList2 ← RemoveAllDups (list2)
bothList ← Combine (newList1, newList2)
uniqueList ← RemoveAllDups (bothList)
count ← LENGTH (bothList) - LENGTH (uniqueList)
```

Strategy: WRITE IT OUT!

A
```
bothList ← Combine (list1, list2)
uniqueList ← RemoveAllDups (bothList)
count ← LENGTH (bothList) - LENGTH (uniqueList)
```

repeated

B
```
newList1 ← RemoveAllDups (list1)
newList2 ← RemoveAllDups (list2)
bothList ← Combine (newList1, newList2)
count ← LENGTH (list1) + LENGTH (list2) - LENGTH (bothList)
```

C
```
newList1 ← RemoveAllDups (list1)
newList2 ← RemoveAllDups (list2)
bothList ← Combine (newList1, newList2)
count ← LENGTH (newList1) + LENGTH (newList2) - LENGTH (bothList)
```

D
```
newList1 ← RemoveAllDups (list1)
newList2 ← RemoveAllDups (list2)
bothList ← Combine (newList1, newList2)
uniqueList ← RemoveAllDups (bothList)
count ← LENGTH (bothList) - LENGTH (uniqueList)
```

AP Exam: Info

Take one of your AP labels and stick it on the back of your student ID.
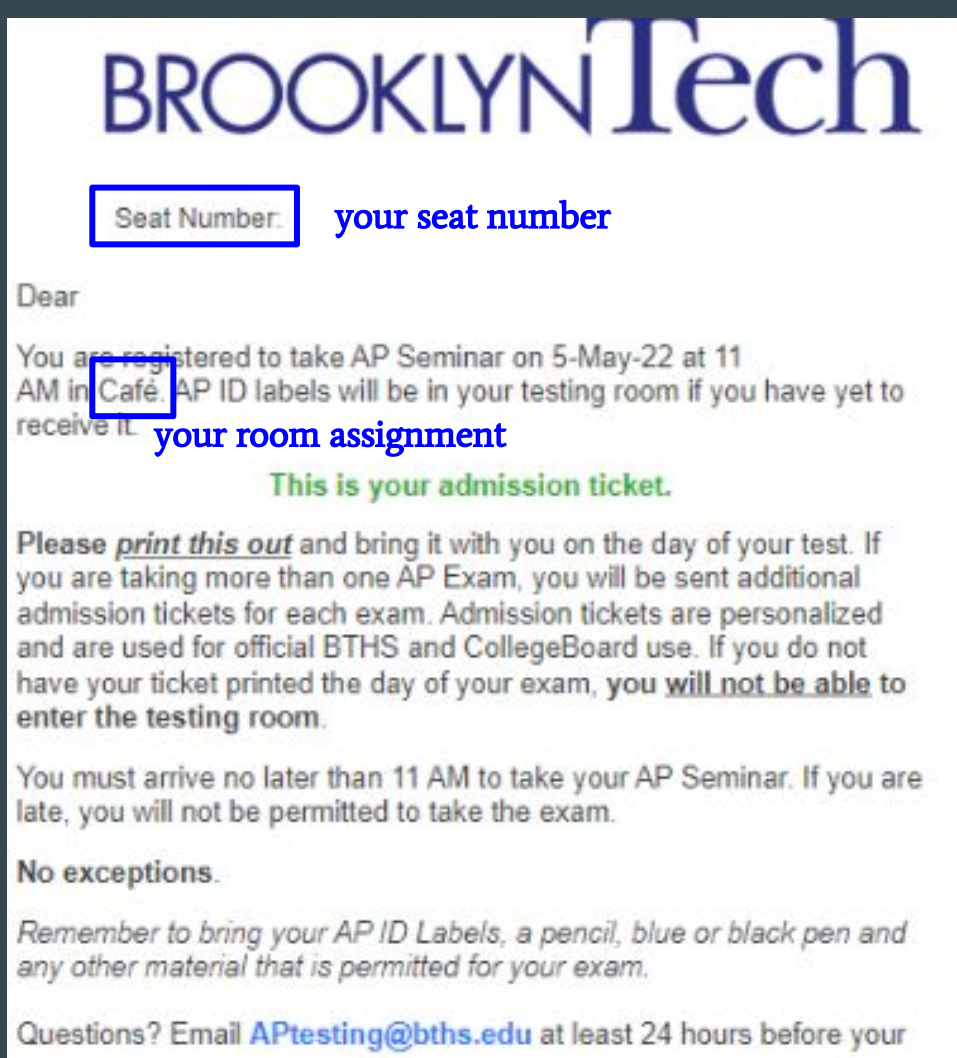
You must bring this label sheet with you on Monday.

AP Exam: Info

An admission ticket for the AP CSP Exam on Monday will be emailed to you later this week from BTHS testing -- you must **print it out and bring it with you on Monday** (it has your room and seat assignment).

This ticket was sent to your **email associated with your College board account** -- if you don't remember which email address you used, ask me and I can look it up.

If you don't get one, check your spam folder.

BROOKLYN Tech

Seat Number: | your seat number

Dear

You are registered to take AP Seminar on 5-May-22 at 11 AM in Café. AP ID labels will be in your testing room if you have yet to receive it.

your room assignment

This is your admission ticket.

Please _print this out_ and bring it with you on the day of your test. If you are taking more than one AP Exam, you will be sent additional admission tickets for each exam. Admission tickets are personalized and are used for official BTHS and CollegeBoard use. If you do not have your ticket printed the day of your exam, **you will not be able** to enter the testing room.

You must arrive no later than 11 AM to take your AP Seminar. If you are late, you will not be permitted to take the exam.

No exceptions.

Remember to bring your AP ID Labels, a pencil, blue or black pen and any other material that is permitted for your exam.

Questions? Email APtesting@bths.edu at least 24 hours before your

AP Exam: Info

Monday, 12:00 pm -- be here by 11:00am

2 hours: 12:00 - 2:00

70 Q's in total:
- 57 multiple-choice questions
- 5 multiple-choice questions with reading passage
- 8 "select two" questions (these will all be at the end)

Don't leave any blank! There is no penalty for guessing.

AP Exam: Info

BRING the following:
- #2 pencils + erasers
- Your printed exam ticket (will be emailed to you this week)
- Your AP label sheet
- Your school ID (with AP label stuck on back)
- You are encouraged to bring a (*non-smart*) **wristwatch** just in case there are no clocks that are easily visible (cannot be connected to the internet or make any noise)

Do **NOT** bring:
- scrap paper (you will use exam books for scrap)
- calculators or other electronics
- smart watches

STUDY RECOMMENDATIONS this weekend

- **Complete both Practice Tests** (2020 and 2021) in AP Classroom and check your answers

- **Look through all 4 Review Packets**
  - Packets 1-2 cover all programming
  - Packets 3-4 cover all non-programming
  - *All vocab you need is in the red boxes throughout the packets*
  - You aren't required to finish all practice problems in all packets; focus on those areas that you need to review the most.

- Any unfinished AP Classroom practice sets from labs

Get a good night's sleep Sunday! You've got this! 😎
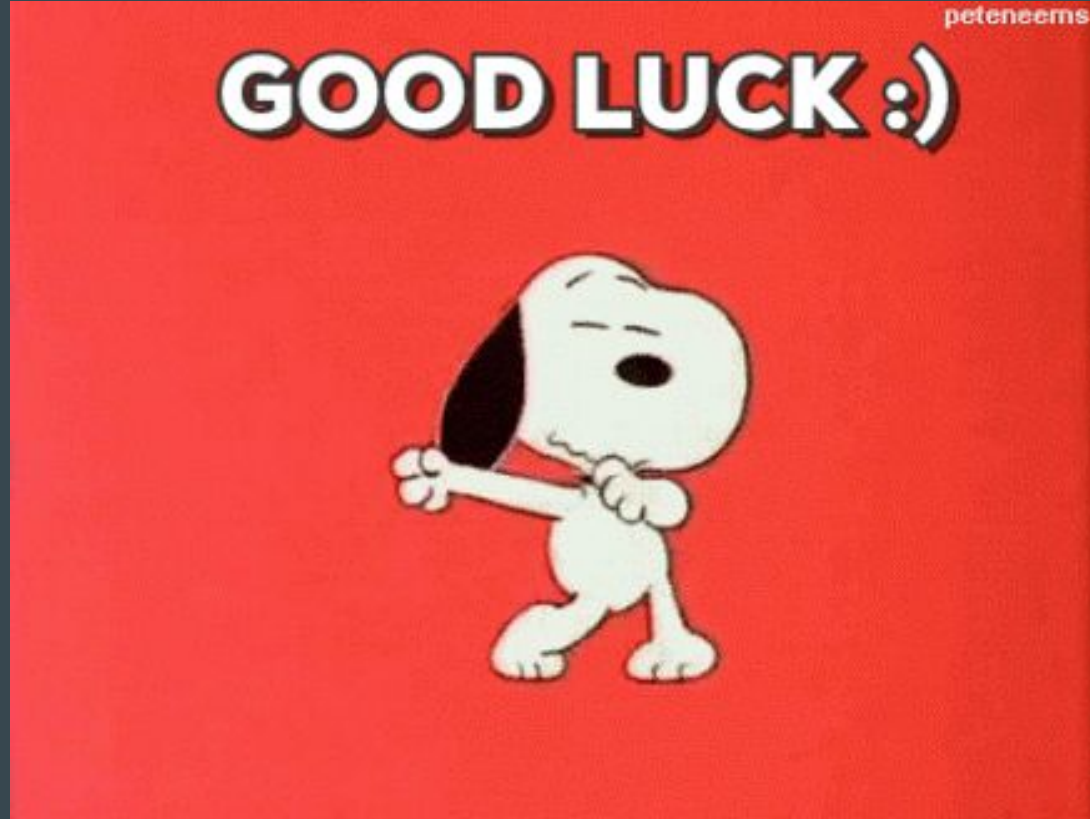
AP Computer Science Principles

AP Exam Review

Class 135

May 3, 2023

Mr. Miller

Do Now in Google Classroom!

Agenda

- Finish 2021 Practice Exam and submit! An answer has been posted; use it to review any wrong answers (explanations on AP Classroom)

- **Review Packets 1-4 for studying now and this weekend:**
  - Packets 1-2 cover all programming
  - Packets 3-4 cover all non-programming
  - ***All vocab you need is in the red boxes*** -- be sure to review all vocab sections in all packets before Monday!

Half Days Thursday & Friday

Thursday, May 4

Period	Time
1	12:49pm – 1:10pm
2	1:14pm – 1:35pm
3	1:39pm – 2:00pm
4	2:04pm – 2:25pm
5	2:29pm – 2:50pm

Friday, May 5

Period	Time
6	12:58pm - 1:23pm
7	1:27pm - 1:52pm
8	1:56pm - 2:21pm
9	2:25pm - 2:50pm
10	2:54pm - 3:19pm

On Monday, Mr. Miller will be in 1E10 all morning for any last minute questions!

AP Exam: Info

You must pick your AP Labels up **TODAY** in the cafeteria if you don't have them already! (they will not be distributed Thursday or Friday)

Take one of the labels and stick it on the back of your student ID.

You must bring this label sheet with you on Monday.

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- scrap paper (you will use exam books for scrap)
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STUDY RECOMMENDATIONS before Monday

- **Complete both Practice Tests** (2020 and 2021) in AP Classroom and check your answers

- **Look through all 4 Review Packets**
  - Packets 1-2 cover all programming
  - Packets 3-4 cover all non-programming
  - *All vocab you need is in the red boxes throughout the packets*
  - You aren't required to finish all practice problems in all packets; focus on those areas that you need to review the most.

- Any unfinished AP Classroom practice sets from labs

If you are taking an AP Exam tomorrow

- Good luck tomorrow!!!!

- You aren't required to attend classes after (but you can if you want to)

- If I don't see you tomorrow, good luck on the AP CSP exam Monday! You've got this! 😎
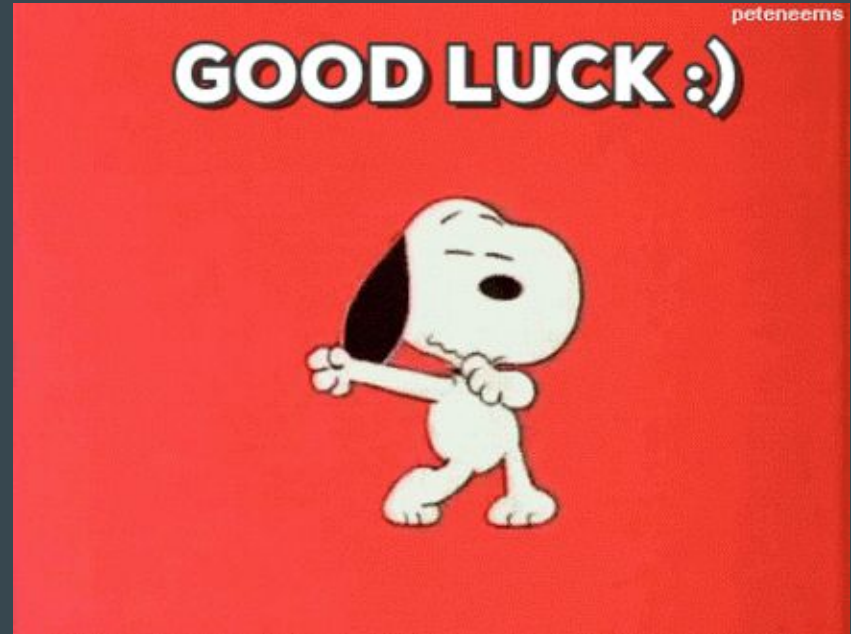
GOOD LUCK :)

peteneems

AP Computer Science Principles

Create Task is DONE! 😎

AP Exam Review

Class 134
May 2, 2023
Mr. Miller

Do Nows in Google Classroom!

Important!

If you don't have your AP labels already, you **must** pick them up **TOMORROW** (Wednesday) in the Cafeteria.

They will **not** be distributed Thursday or Friday.

Do Now 1

Abstraction *is the process of reducing complexity.* In code, abstraction is anything that helps "hide or manage complexity" of your program. Which of these are examples of abstraction in programming?

Select <u>TWO</u>:
a. Replacing repeated blocks of code with a function.
b. Documenting your code by adding comments explaining what it does.
c. Using shorter variable names.
d. Replacing 5 variables -- name1, name2, name3, name4, and name5 -- with a single list called "names" that includes 5 names.

Do Now 1

Abstraction *is the process of reducing complexity.* In code, abstraction is anything that helps "hide or manage complexity" of your program. Which of these are examples of abstraction in programming?

Select <u>TWO</u>:
a. Replacing repeated blocks of code with a function. ("procedural abstraction")
b. Documenting your code by adding comments explaining what it does.
c. Using shorter variable names.
d. Replacing 5 variables -- name1, name2, name3, name4, and name5 -- with a single list called "names" that includes 5 names. ("data abstraction")

Do Now 2

Reminder you will have this Reference Sheet on the AP Exam (all programming questions will be comprised of statements/commands from this sheet): https://apcentral.collegeboard.org/media/pdf/ap-computer-science-principles-exam-reference-sheet.pdf

Do Now 2

What gets displayed?

```
myList ← [4, 3, 5, 2]
APPEND(myList, 6)
INSERT(myList, 1, 3)
REMOVE(myList, 4)
myList[2] ← 7
DISPLAY(myList)
```

Do Now 2

What gets displayed?

```
myList ← [4, 3, 5, 2]
APPEND(myList, 6)
INSERT(myList, 1, 3)
REMOVE(myList, 4)
myList[2] ← 7
DISPLAY(myList)
```

Write down a "trace table":

myList: [4, 3, 5, 2]

Do Now 2

What gets displayed?

```
myList ← [4, 3, 5, 2]          myList: [4, 3, 5, 2]
APPEND(myList, 6)              myList: [4, 3, 5, 2, 6]
INSERT(myList, 1, 3)
REMOVE(myList, 4)
myList[2] ← 7
DISPLAY(myList)
```

Do Now 2

What gets displayed?

```
myList ← [4, 3, 5, 2]          myList: [4, 3, 5, 2]
APPEND(myList, 6)              myList: [4, 3, 5, 2, 6]
INSERT(myList, 1, 3)          myList: [3, 4, 3, 5, 2, 6]
REMOVE(myList, 4)
myList[2] ← 7
DISPLAY(myList)
```

Do Now 2

What gets displayed?

```
myList ← [4, 3, 5, 2]          myList: [4, 3, 5, 2]
APPEND(myList, 6)              myList: [4, 3, 5, 2, 6]
INSERT(myList, 1, 3)          myList: [3, 4, 3, 5, 2, 6]
REMOVE(myList, 4)             myList: [3, 4, 3, 2, 6]   5 removed
myList[2] ← 7
DISPLAY(myList)
```

Do Now 2

What gets displayed?

```
myList ← [4, 3, 5, 2]
APPEND(myList, 6)
INSERT(myList, 1, 3)
REMOVE(myList, 4)
myList[2] ← 7
DISPLAY(myList)
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myList: [4, 3, 5, 2]
myList: [4, 3, 5, 2, 6]
myList: [3, 4, 3, 5, 2, 6]
myList: [3, 4, 3, 2, 6]   5 removed
myList: [3, 7, 3, 2, 6]

Do Now 2

What gets displayed?

```
myList ← [4, 3, 5, 2]          myList: [4, 3, 5, 2]
APPEND(myList, 6)              myList: [4, 3, 5, 2, 6]
INSERT(myList, 1, 3)          myList: [3, 4, 3, 5, 2, 6]
REMOVE(myList, 4)             myList: [3, 4, 3, 2, 6]   5 removed
myList[2] ← 7                 myList: [3, 7, 3, 2, 6]
DISPLAY(myList)
```

[3, 7, 3, 2, 6]

Consider the following algorithms. Each algorithm operates on a list containing n elements, where n is a very large integer.

    I. An algorithm that accesses each element in the list twice
    II. An algorithm that accesses each element in the list n times
    III. An algorithm that accesses only the first 10 elements in the list, regardless of the size of the list

Which of the algorithms run in reasonable time?

(A)   I only

(B)   III only

(C)   I and II only

(D)   I, II, and III

2020 Practice Exam Most Missed Questions

Consider the following algorithms. Each algorithm operates on a list containing n elements, where n is a very large integer.

    I. An algorithm that accesses each element in the list twice
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From the AP Extra Lab
Reasonable time algorithms are any algorithm that run in **polynomial** time:
- Constant time
- Linear time
- Sublinear time
- Quadratic time (n^2)
- Cubic time

2020 Practice Exam Most Missed Questions

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II. An algorithm that accesses each element in the list n times
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Reasonable time algorithms are any algorithm that run in **polynomial** time:
- Constant time
- Linear time
- Sublinear time
- Quadratic time (n^2)
- Cubic time

Unreasonable time:
- Exponential (2^n)
- Factorial

(A) I only

(B) III only

(C) I and II only

(D) I, II, and III

2020 Practice Exam Most Missed Questions

Consider the following algorithms. Each algorithm operates on a list containing n elements, where n is a very large integer.

I. An algorithm that accesses each element in the list twice — this algorithm takes **2n** steps

II. An algorithm that accesses each element in the list n times

III. An algorithm that accesses only the first 10 elements in the list, regardless of the size of the list

Which of the algorithms run in reasonable time?

(A) I only

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- Constant time
- Linear time
- Sublinear time
- Quadratic time (n^2)
- Cubic time

Unreasonable time:
- Exponential (2^n)
- Factorial

2020 Practice Exam Most Missed Questions

Consider the following algorithms. Each algorithm operates on a list containing n elements, where n is a very large integer.

I. An algorithm that accesses each element in the list twice   this algorithm takes **2n** steps -- **linear!**
II. An algorithm that accesses each element in the list n times
III. An algorithm that accesses only the first 10 elements in the list, regardless of the size of the list

Which of the algorithms run in reasonable time?

(A) I only

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- Cubic time

Unreasonable time:
- Exponential (2^n)
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2020 Practice Exam Most Missed Questions

Consider the following algorithms. Each algorithm operates on a list containing n elements, where n is a very large integer.

I. An algorithm that accesses each element in the list twice   this algorithm takes **2n** steps -- **linear!**   reasonable
II. An algorithm that accesses each element in the list n times
III. An algorithm that accesses only the first 10 elements in the list, regardless of the size of the list

Which of the algorithms run in reasonable time?

(A)   I only

(B)   III only

(C)   I and II only

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Reasonable time algorithms are any algorithm that run in **polynomial** time:
- Constant time
- Linear time
- Sublinear time
- Quadratic time (n^2)
- Cubic time

Unreasonable time:
- Exponential (2^n)
- Factorial

2020 Practice Exam Most Missed Questions

Consider the following algorithms. Each algorithm operates on a list containing *n* elements, where *n* is a very large integer.

I. An algorithm that accesses each element in the list twice   this algorithm takes **2n** steps -- **linear!**   reasonable

II. An algorithm that accesses each element in the list *n* times   this algorithm takes **n*n = n^2** steps

III. An algorithm that accesses only the first 10 elements in the list, regardless of the size of the list

Which of the algorithms run in reasonable time?

(A)   I only

(B)   III only

(C)   I and II only

(D)   I, II, and III

From the AP Extra Lab

Reasonable time algorithms are any algorithm that run in **polynomial** time:

- Constant time
- Linear time
- Sublinear time
- Quadratic time (n^2)
- Cubic time

Unreasonable time:

- Exponential (2^n)
- Factorial

2020 Practice Exam Most Missed Questions

Consider the following algorithms. Each algorithm operates on a list containing n elements, where n is a very large integer.

I. An algorithm that accesses each element in the list twice   this algorithm takes **2n** steps -- **linear!** **reasonable**

II. An algorithm that accesses each element in the list n times this algorithm takes **n*n** = **n^2** steps -- **quadratic!**

III. An algorithm that accesses only the first 10 elements in the list, regardless of the size of the list

Which of the algorithms run in reasonable time?

From the AP Extra Lab

Reasonable time algorithms are any algorithm that run in **polynomial** time:

(A) I only

- Constant time
- Linear time
- Sublinear time
- Quadratic time (n^2)
- Cubic time

(B) III only

Unreasonable time:
- Exponential (2^n)
- Factorial

(C) I and II only

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2020 Practice Exam Most Missed Questions

Consider the following algorithms. Each algorithm operates on a list containing n elements, where n is a very large integer.

I. An algorithm that accesses each element in the list twice — this algorithm takes **2n** steps -- **linear!** reasonable

II. An algorithm that accesses each element in the list n times — this algorithm takes **n*n = n^2** steps -- **quadratic!**

III. An algorithm that accesses only the first 10 elements in the list, regardless of the size of the list — reasonable

Which of the algorithms run in reasonable time?

(A) I only

(B) III only

(C) I and II only

(D) I, II, and III

From the AP Extra Lab

Reasonable time algorithms are any algorithm that run in **polynomial** time:

- Constant time
- Linear time
- Sublinear time
- Quadratic time (n^2)
- Cubic time

Unreasonable time:

- Exponential (2^n)
- Factorial

2020 Practice Exam Most Missed Questions

Consider the following algorithms. Each algorithm operates on a list containing n elements, where n is a very large integer.

I. An algorithm that accesses each element in the list twice   *this algorithm takes $2n$ steps -- **linear**!* **reasonable**

II. An algorithm that accesses each element in the list n times   *this algorithm takes $n*n = n^2$ steps -- **quadratic**!*

III. An algorithm that accesses only the first 10 elements in the list, regardless of the size of the list   **reasonable**

                                     *this algorithm takes **10** steps*

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Unreasonable time:
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If there had been an answer choice that involved "**doubling**" each time, *that* is 2^n, or exponential, which is **not** reasonable

Today's Agenda

Have out scrap paper and the **AP CSP Reference**

Continue working on **Practice Exam #2:** **2021 Practice Exam** on AP Classroom.

If you finish early, begin working through the Review Packets 1-4

58 — 59 — 60 — 61 — 62   63 64 65 66 67 68 69 70

5 questions with reading passage   8 choose-two questions

Don't forget! FOR LISTS ON THE AP EXAM, THE FIRST INDEX IS 1, NOT 0

AP Computer Science Principles

Thank you for getting Create Tasks finalized! Almost everyone has it submitted, awesome work all 😎

AP Exam Review

```
Class 133
May 1, 2023
Mr. Miller
```

AP Exam: Info

Next Monday, May 8, 12:00pm, be here by 11:00 am.

You are not required to attend classes the morning of May 8 (although you can if you want to); if you don't attend classes in the morning, **be sure to arrive by 11:00am**

Same policy applies for other AP exams you might be taking (if you have a morning exam, you can leave right after it)

AP Exam: Info
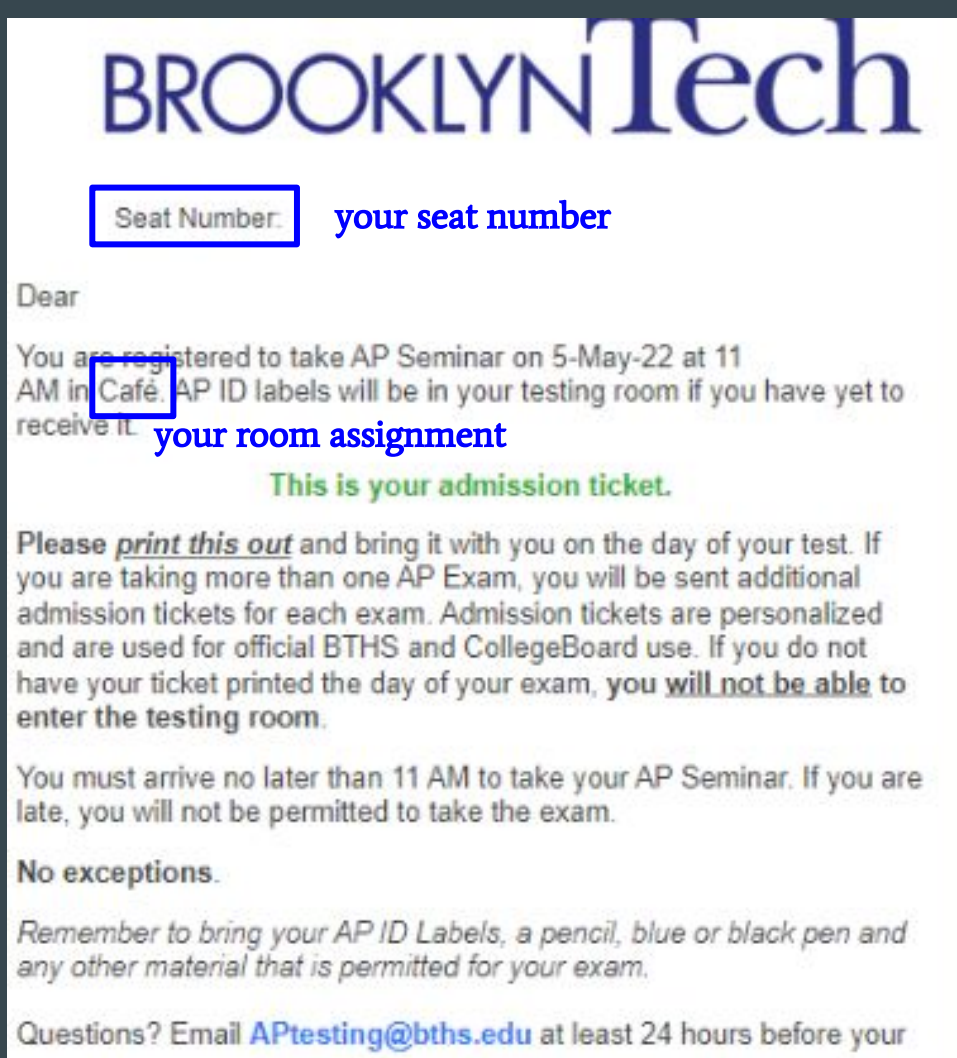
- Multiple Choice test is 70% of AP Score, the Create Task is 30%

- In July, College Board releases scores

- You will receive an overall AP Score out of 5:
  - 5 is excellent (and will earn you college credit at many schools!)
  - 4 is good
  - 3 is passing

AP Exam: Info

An admission ticket for the AP CSP Exam on Monday will be emailed to you later this week from BTHS testing -- you must **print it out and bring it with you on Monday** (it has your room and seat assignment).

This ticket was sent to your **email associated with your College board account** -- if you don't remember which email address you used, ask me and I can look it up.

If you don't get one, check your spam folder.

BROOKLYN Tech

Seat Number: **your seat number**

Dear

You are registered to take AP Seminar on 5-May-22 at 11 AM in Café. AP ID labels will be in your testing room if you have yet to receive it. **your room assignment**

This is your admission ticket.

Please *print this out* and bring it with you on the day of your test. If you are taking more than one AP Exam, you will be sent additional admission tickets for each exam. Admission tickets are personalized and are used for official BTHS and CollegeBoard use. If you do not have your ticket printed the day of your exam, **you will not be able** to enter the testing room.

You must arrive no later than 11 AM to take your AP Seminar. If you are late, you will not be permitted to take the exam.

No exceptions.

Remember to bring your AP ID Labels, a pencil, blue or black pen and any other material that is permitted for your exam.

Questions? Email APtesting@bths.edu at least 24 hours before your

AP Exam: Info

You will be receiving AP labels soon (if you haven't already).

Take one of the labels and stick it on the back of your student ID.

You must bring this sticker sheet with you on Monday.

AP Exam: Info

BRING the following:
- #2 pencils + erasers
- Your printed exam ticket (will be emailed to you this week)
- Your AP label sheet
- Your school ID (with AP label stuck on back)
- You are encouraged to bring a (*non-smart*) **wristwatch** just in case there are no clocks that are easily visible (cannot be connected to the internet or make any noise)

Do **NOT** bring:
- scrap paper (you will use exam books for scrap)
- calculators or other electronics
- smart watches

AP Exam: Info

2 hours: 12:00 - 2:00

70 Q's in total:
- 57 multiple-choice questions
- 5 multiple-choice questions with reading passage
- 8 "select two" questions (these will all be at the end)

Don't leave any blank! There is no penalty for guessing.

Tested Topics

- **Programming & Algorithms (~40%, or 28 / 70 Q's)** - Units 1, 2, 3, 7
  - Predicting output, finding errors in code, "what does this code do?"
  - Programming problems involving if-else, loops, list operations, `AND` `OR` `NOT`, variables, math operators, random, strings (text), procedures with parameters
  - "Robot in a maze" problems (move forward, turn right, etc.)
  - Binary/linear search
  - Algorithm efficiency, reasonable time, decidable problems
  - Simulations

- **Data (~20%, or 14 / 70 Q's)** - Units 4, 7
  - Bits, binary numbers, binary → decimal conversion
  - Lossy and lossless data compression
  - Analyzing data sets, spreadsheets
  - Metadata, cleaning data, filtering/sorting, graphing

Tested Topics

- **Impacts of Computing & Safe Computing (~25%, or 18 / 70 Q's) - Unit 7**
  - Beneficial and harmful effects
  - Digital divide
  - Crowdsourcing, crowdfunding, "citizen science"
  - Legal and ethical concerns of AI, bias in data
  - Copyright, Creative Commons, open source, open access
  - Personally Identifiable Information (PII), data uses by companies
  - Location tracking (GPS), cookies, ad targeting, search engines
  - Multi-factor authentication
  - Symmetric & public key encryption
  - Digital certificates, certificate authorities
  - Phishing, viruses, malware, keyloggers

Tested Topics

- **The Internet & Computer Systems (~15%, or 10 / 70 Q's) -** **Units 4, 7**
  - How the internet works, packets, routing, bandwidth
  - Protocols (TCP / IP / HTTP) and their benefits
  - IPv4 vs. IPv6
  - World Wide Web
  - Redundancy, fault tolerance, scalability
  - Sequential and parallel computing
  - Distributed computing

The stuff we did in Units 5 & 6 (tuples, classes, objects, PyGame) is **NOT** tested.

Today's Agenda

You will have 3 class days (2 hours) to work on **Practice Exam #2:** 2021 Practice Exam on AP Classroom with your partner and other classmates. Talk through each problem and submit it when you are finished. If you don't quite get it done by Thursday, be absolutely certain to finish it before Monday **(it is the single best practice test available).**

You may use the **AP CSP Reference**, which will also be provided during the exam.

This one will be based on accuracy, so work carefully and talk through the problems. You should all get perfect scores! 😎

5 questions with reading passage   8 choose-two questions

Don't forget! FOR LISTS ON THE AP EXAM, THE FIRST INDEX IS 1, NOT 0

Review Packets

Four review packets have been posted. They contain the vocab you need to know with practice problems sorted by topic. You can use these packets in the evenings to study from.

You are not required to finish all problems or submit these packets, but if you work through all of them and understand all the vocab/problems, you have a very good chance at getting a perfect 70/70 on the exam! 😎

If you finish the practice exam early, begin reviewing these guides!

BY MAY 8, be sure you have finished all practice AP practice sets and both Practice Exams in AP Classroom.