

CIS120/17 Course Page

www.pgrocer.net/PFGCIS120.html

**Programming: Logic, Design and Implementation**  
**CIS120/17**

**About This Course:**  
 Read Me First  
 Introduction to CIS120/17  
 Syllabus  
 Withdrawal Policy as of Fall 2017

**Site Resources:**  
 Notes and Handouts  
 Examples  
 Programs  
 Presentations  
 SmartBoard Presentations  
 Audio/lectures

**Weekly Schedule:**  
 Weekly schedule  
 Assignment summary

**Links:**  
 Links & Tutorials

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**Stem Activity**  
 This is Enrollment Verification week and I have to verify you are in the class. If you have not passed in work or the email a week verifying you are in the class, then you need to contact me now to make sure you are not withdrawn from the class.  
 Reading - there is not a required text but there is reading that will add to your knowledge base and that is required:  
 If you bought the optional text, read chapter 1 (you might note that at Amazon much of the first chapter is available for [Just Enough Programming Logic and Design](#) in the Look inside feature). Might help you decide about the book.

**Compiler definition**  
**Compiler vs interpreter**  
**Types of software** Please read...  
**Memory and RAM**  
**Programming Process**  
**Examples: Pseudocode and Flowcharts**  
**Pseudocode and Flowcharts**  
**Data types**  
 I also want to include some information on skills, so please listen to this video and read this handout about note taking.  
**Note taking video**  
**Cornell method of note taking** is the specific one to read. I also suggest checking out the other links on this page.  
 We went over SQL last week. Here are some examples you may find helpful:  
**Some SQL examples** Let me know if you find a typo. **Please check SQL examples.**  
 This week, we will go over some of the principles from the readings above and start looking at logic. We will work on the practice exercise below.  
**Practice exercise:**  
**Practice exercise**  
**Practice continued**  
**Presentation on using pseudocode to play computer**  
**Separate speaker notes to accompany presentation on using pseudocode to play computer**  
 Check back!

Week #4  
 Week of  
 September 25th

SMART Ink

10:58 AM  
 9/26/2017

start | I suggest you listen to the audio that accompanies this. | SMART Ink

www.pgrocer.net/Cis17/inclass/loopifplay.html

### In Class Exercise on loops and if statements:

These are unrealistic problems, but they help to make sure that you understand the flow of logic and can follow it through to completion.

Problems #1:

```

start
  firstNum = 100
  secondNum = 5
  thirdNum = 12
  the Result = 0
  do while secondNum <= thirdNum
    if firstNum > 500
      firstNum = firstNum * 2
      secondNum = secondNum + 1
    else
      firstNum = firstNum + 100
      thirdNum = thirdNum - 1
    end if
  end while loop
  theResult = firstNum + secondNum + thirdNum
  display theResult
end

```

Problems #2:

```

start
  firstNum = 25
  secondNum = 50
  thirdNum = 75
  fourthNum = 100
  ct = 0
  workAns = 0
  theAns = 0
  do while ct < 6
    workAns = firstNum + secondNum
    if workAns > thirdNum
      fourthNum = fourthNum / 2
    end if
  end while loop
end

```

**Handwritten Annotations:**

- Variables:** A bracket groups the variable declarations in Problem #1.
- Initial Value:** A bracket groups the initial values in Problem #1.
- Initialize house keeping:** A bracket groups the initialization and result assignment in Problem #1.
- Processing Loop:** A bracket groups the while loop body in Problem #1.
- ending also called wrapup:** A bracket groups the final calculation and display in Problem #1.
- Memory:** A box labeled "Memory" contains "100" and "first Num".
- Program:** A list of concepts: "Sequence", "decisions if", "repeat loop".

start

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  else
    firstNum = firstNum + 100
    thirdNum = thirdNum - 1
  end if
end while loop
theResult = firstNum + secondNum + thirdNum
display theResult
end

```

Mistake  
no  
embed  
space

$$\frac{\text{firstNum}}{100}$$

$$\frac{\text{secondNum}}{5}$$

$$\frac{\text{thirdNum}}{12}$$

$$\frac{\text{theResult}}{0}$$

Problem #2:

```

start
firstNum = 25
secondNum = 50
thirdNum = 75
fourthNum = 100
ct = 0
workAns = 0
theAns = 0
do while ct < 6
  workAns = firstNum + secondNum
  if workAns > thirdNum
    fourthNum = fourthNum / 2
  end if
  ct = ct + 1
end while
display theAns
end

```

start

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```

Problem #2:

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    if workAns > thirdNum
      fourthNum = fourthNum / 2
    end if
    ct = ct + 1
  end while
  display theAns
end

```

Handwritten notes:

$$\frac{\text{firstNum}}{100}$$

$$\frac{\text{secondNum}}{5}$$

$$\frac{\text{thirdNum}}{12}$$

$$\frac{\text{theResult}}{0}$$

loop  
 set controls secondNum  
 thirdNum

check  
 change control

Display the progress of ongoing downloads (Ctrl+J)

Capture to new page

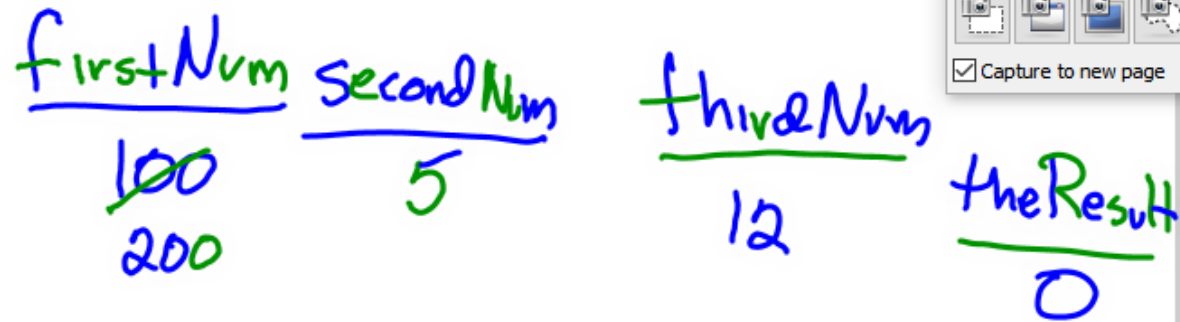
### In Class Exercise on loops and if statements:

These are unrealistic problems, but they help to make sure that you understand the flow of logic and can follow it through to completion.

#### Problems #1:

```

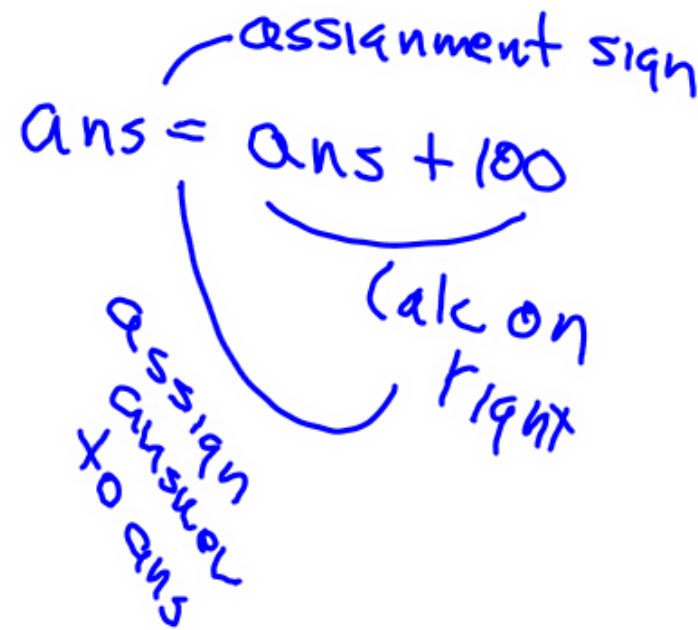
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  secondNum = 5
  thirdNum = 12
  theResult = 0
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      firstNum = firstNum * 2
      secondNum = secondNum + 1
    else
      firstNum = firstNum + 100
      thirdNum = thirdNum - 1
    end if
  end while loop
  theResult = firstNum + secondNum + thirdNum
  display theResult
end
  
```



#### Problem #2:

```

start
  firstNum = 25
  secondNum = 50
  thirdNum = 75
  fourthNum = 100
  ct = 0
  workAns = 0
  theAns = 0
  do while ct < 6
    workAns = firstNum + secondNum
    if workAns > thirdNum
      fourthNum = fourthNum / 2
    end if
  end while
end
  
```



start

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### In Class Exercise on loops and if statements:

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  do while ct < 6
    workAns = firstNum + secondNum
    if workAns > thirdNum
      fourthNum = fourthNum / 2
    end if
  end while
end

```

firstNum

~~100~~

200

300

~~400~~

~~500~~

600

~~1000~~

2400

4800

secondNum

~~5~~

6

7

8

thirdNum

12

11

10

9

~~8~~

7

theResult

~~0~~

41815

4615

start

```

    thirdNum = thirdNum - 1
  end if
end while loop
theResult = firstNum + secondNum + thirdNum
display theResult
end

```

Problem #2:

```

start
  firstNum = 25
  secondNum = 50
  thirdNum = 75
  fourthNum = 100
  ct = 0
  workAns = 0
  theAns = 0
  do while ct < 6
    workAns = firstNum + secondNum
    if workAns > thirdNum
      fourthNum = fourthNum / 2
      firstNum = firstNum * 3
      secondNum = firstNum - secondNum
      thirdNum = thirdNum * 2
    else
      firstNum = firstNum + 10
      secondNum = secondNum + 10
      thirdNum = thirdNum + 10
    end if
    ct = ct + 1
  end do
  theAns = firstNum + secondNum * thirdNum + fourthNum
  display theAns
end

```

the Ans  
0

first Num      second Num      third Num      fourth Num      workAns      ct

<del>25</del>	135	<del>50</del>	75	100	0	0
<del>35</del>	405	<del>60</del>	85	50	75	+
<del>105</del>		<del>45</del>	170	25	95	2
<del>115</del>		<del>55</del>	180		150	3
<del>125</del>		<del>65</del>	190		170	4
		<del>75</del>	200		190	5
		330	400		210	6

330  
x 400  
-----  
132000 + 405 + 25  
132430

132430

132430

File Tools View ifexampleS10 (Protected View) - Word SMART Ink

PROTECTED VIEW Be careful—files from the Internet can contain viruses. Unless you need to edit, it's safer to stay in Protected View. Enable Editing

Practice exercise:

Payroll file: (each record is payRecord)

idno	name	payHr	regHrs	ovtHrs
1111	John Doe	20	40	10
1234	Ann Costa	25	40	0
2222	Linda Ryan	30	40	20
2345	Bob Smith	30	35	10
EOF				

```

start
  read payRecord
  do while not endOfFile
    if ovtHrs > 0
      regPay = payHr * regHrs
      ovtPay = payHr * ovtHrs * 1.5
      totPay = regPay + ovtPay
    else
      totPay = payHr * regHrs
    end if
    display totPay
    read payRecord
  end do while loop
stop program
  
```

Handwritten notes and calculations:

- Blue circle: 1100, 1000, 2100, 1500
- Handwritten table:
 

reg Pay	ovtTime	tot Pay
800	300	1100
1200	900	1000
1050	450	2100
		1500



File Tools View ifexampleS10 (Protected View) - Word

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1111	John Doe	20	40	10
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2345	Bob Smith	30	35	10
EOF				

```

start
  read payRecord
  do while not endOfFile
    if ovtHrs > 0
      regPay = payHr * regHrs
      ovtPay = payHr * ovtHrs * 1.5
      totPay = regPay + ovtPay
    else
      totPay = payHr * regHrs
    end if
    display totPay
    read payRecord
  end do while loop
stop program
  
```

Handwritten notes and calculations:

- Field names** (blue arrow pointing to table headers)
- Rec1** (green arrow pointing to first row)
- 1100**, **1000**, **2100**, **1500** (circled in blue, next to code)
- Initializing read - 1st record** (green note)
- regPay**, **ovtTime**, **totPay** (handwritten columns):
 

800	300	1100
1200	900	1000
1050	450	2100
		1500
- everything a flow 1st record is done here** (green note)