

RECOMP II USERS' PROGRAM NO. 1016

PROGRAM TITLE: AFIT 051 STUDENT GRADE POINT AVERAGE ROUTINE

PROGRAM CLASSIFICATION: Demonstration and Training

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PURPOSE: To compute a grade point average for each student.

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Although it is recognized that the user of this program should take care to check the results of the program, the user is advised that the program is provided as a service to the user and is not intended to be used as a substitute for the user's own judgment. The user is advised that the program is provided as a service to the user and is not intended to be used as a substitute for the user's own judgment. The user is advised that the program is provided as a service to the user and is not intended to be used as a substitute for the user's own judgment.

STUDENT GRADE POINT AVERAGE ROUTINE

1. Enter tape at photoreader.
2. Operation Switch at Continuous Pre-Set Stop Switch in central position.  
Transfer Stop Switch Down.  
Press ERROR RESET on console.
3. Location Counter should be at 0500.  
Press N on console.  
Enter student's cumulative credit hours from previous quarters, on the console, in the form ( + ) (Digits) (Decimal point) ( sign)  
(Clear).
4. Location Counter is now at 0501, and N lamp is still ON.  
Enter student's cumulative Quality Points from previous quarters, on the console, in the form  
( + )  
(sign) (Digits) (Decimal Point) (Clear)  
  
TAB DEFEAT switch on typewriter to REAR.
5. Location Counter is now at 0502. Touch START. Typewriter will TAB, and stop, waiting for the letter grade for the first course. On the typewriter, strike A, B, C, D, or E.
6. Typewriter will TAB, and stop, waiting for the number of Credit Hours for the Course.  
  
Type one digit, followed by a decimal point or, two digits.
7. Typewriter will type Quality Points for the course, and then return, and wait for the next grade letter.  
Repeat steps 5 and 6.
8. When all courses for the present quarter have been entered, type P instead of a grade letter. Machine will enter quarter credit hours, quarter quality points, quarter grade point average, cumulative hours, cumulative quality point, and cumulative grade point average.
9. Location Counter returns to 0500, waiting for data for the next student.  
Repeat steps 1 - 8.
10. The format is shown at the head of the program print out.

	A	4.	16.		
	B	16	48.		
	C	3.	6.		
	E	5.	.		
	D	10	10.		
	P	38.	80.		
QTR GPA	2.105	CUM HRS	63.	CUM QPTS	139.
				CUM GPA	2.206

# Grade Point Average Routine

	A		6.		24.		
	B		12		36.		
	C		4.		8.		
	D		13		13.		
	E		7.		31.		
	P		42.		81.		
QTR GPA	1.929	CUM HRS	69.	CUM QPTS	137.	CUM GPA	2.074

0500  
0501

Cum. Hrs. so far @ b39

Cum Q. Pts. so far @ b39

	+CLA Zero	0502	+00 0511 0			
	+STO Qtr Cr Hrs		+60 0625 0			
a	+STO Qtr Q Pts	3	+60 0626 0			
	+TYC LTRS		+72 0037 0			
	+TYC CR	4	+72 0010 0			
	+TYC FIGS		+72 0033 0			
	+TYC TAB	5	+72 0010 0			
	+TYC LTRS		+72 0037 0			
	+CLA Zero	6	+00 0511 0			
	+RDY P761		+71 7761 0			
	+STO TSI	7	+60 0537 0			
	+CTL 0520		+64 0520 0			
	+CTV 0530	0510	+66 0530 0			
	+TRA L <sub>0</sub>		+57 7760 0			
	<del>+CLA</del>	1	+00 0000 0			
	<del>-CLA</del>		-00 0000 0			
	<del>+CLA</del>	2	+00 0000 0			
	<del>-CLA</del>		-00 0002 0			
	<del>+CLA</del>	3	+00 0000 0			
	<del>-CLA</del>		-00 0001 1			
	<del>+CLA</del>	4	+00 0000 0			
	<del>-CLA</del>		-00 0001 0			
	<del>+CLA</del>	5	+00 0000 0			
	<del>-CLA</del>		-00 0000 1			
	<del>+CLA</del>	6	+00 0000 0			
	<del>-CLA</del>		-00 0000 0			
	+CLA	7	+00 0000 0			
	-CLA		-00 0000 0			
	+ADD "A"	0520	+01 7771 0			
	+TZE b		+50 0540 0			

} Set Qtr. Cr, Hrs and Qtr. Q. Pts. to zero initially

} Position typewriter for entry of a grade letter

} Wait for a grade letter.

} Zero.

} 4 b39

} 3 b39

} 2 b39

} 1 b39

} Multiplier

} Not used

Grade is "A"

+CLA	TS1	1	+00	7777	0	
+ADD	"B"		+01	7772	0	
+TZE	q	2	+50	0541	1	Grade is "B"
+CLA	TS1		+00	7777	0	
+ADD	"C"	3	+01	7773	0	
+TZE	r		+50	0543	0	Grade is "C"
+CLA	TS1	4	+00	7777	0	
+ADD	"D"		+01	7774	0	
+TZE	s	5	+50	0544	1	Grade is "D"
+CLA	TS1		+00	7777	0	
+ADD	TS1	6	+01	0535	0	
+TZE	t		+50	0546	0	Grade is "E"
+CLA	TS1	7	+00	7777	0	
+ADD	P		+01	7776	0	
+TZE	u	0530	+50	0560	1	All courses have been entered.
+HTR	Q		+77	0503	1	Error return for a new letter.

<del>+CLA</del>		1	+00	0000	0	} A
<del>-CLA</del>			-00	0001	1	
<del>+CLA</del>		2	+00	0000	0	} B
<del>-CLA</del>			-00	0014	1	
<del>+CLA</del>		3	+00	0000	0	} C
<del>-CLA</del>			-00	0007	0	
<del>+CLA</del>		4	+00	0000	0	} D
<del>-CLA</del>			-00	0004	1	
<del>+CLA</del>		5	+00	0000	0	} E
<del>-CLA</del>			-00	0000	1	
<del>+CLA</del>		6	+00	0000	0	} A
<del>-CLA</del>			-00	0013	0	
<del>+CLA</del>		7	-00	0000	0	} TS1
<del>-CLA</del>			-00	0013	0	

Ⓟ	+CLA	4 b39	0540	+00	0512	0	} Select value of a Multiplier, according to the Grade Letter for the course.
	+STO	Mpier		+60	0516	0	
q	+TRA	r v	1	+57	0547	0	
	+CLA	3 b39		+00	0513	0	
	+STO	Mpier	2	+60	0516	0	
	+TRA	v		+57	0547	0	
r	+CLA	2 b39	3	+00	0514	0	
	+STO	Mpier		+60	0516	0	
	+TRA	v	4	+57	0547	0	
	+CLA	1 b39		+00	0515	0	
				+00	0515	0	

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	+STO	Mpier	5	+60	0516	0	
	+TRA	v		+57	0547	0	
†	+CLA	Zero	6	+00	0511	0	
	+STO	Mpier		+60	0516	0	
v	+TYC	FIGS	7	+72	0033	0	
	+TYC	TAB		+72	0010	0	
	+TRA		0550	+57	0666	0	<del>out to type - a patch.</del>
	+ARS	Nop		+40	0000	0	
	<del>+CLA</del>		1	+00	0000	0	} Cr. Hrs for the Course, @ 'b39
	<del>-CLA</del>			-00	0003	1	
	+TYC	TAB	2	+72	0010	0	} Accumulate Qtr Cr. Hrs.
	+CLA	Cr. Hrs.		+00	0551	0	
	+ADD	Qtr Cr Hrs	3	+01	0625	0	
	+STO	Qtr Cr Hrs.		+60	0625	0	
	+CLA	Cr. Hrs.	4	+00	0551	0	} Q. Pts. for Course, @ 'b78'
	+MPY	Mpier		+11	0516	0	
	+XAR		5	+43	0000	0	} Q. Pts. for Course @ 'b79
	+STO			+60	0627	0	
	+TRA		6	+57	0704	0	} A patch to a type routine Accumulate Qtr. Q. Pts.
	+CLA			+00	0627	0	
	+ADD		7	+01	0626	0	
	+STO			+60	0626	0	
u	+TRA	a	0560	+57	0503	1	} Back for next grade letter. Entries finished for Qtr.
	+TYC	FIGS		+72	0033	0	
	+TYC	TAB	1	+72	0010	0	} A patch out to a type routine
	+TRA			+57	0710	0	
	-TUD		2	-12	0447	0	} A dummy, never obeyed
	+TYC	TAB		+72	0010	0	
	+TRA		3	+57	0713	0	} A patch out to a type routine
	+ARS	NOP		+40	0000	0	
	+TYC	LTRS	4	+72	0037	0	
	+TYC	CR		+72	0010	0	
	+TYC	Q	5	+72	0027	0	
	+TYC	T		+72	0020	0	
	+TYC	R	6	+72	0012	0	
	+TYC	Space		+72	0004	0	
	+TYC	G	7	+72	0032	0	
	+TYC	P		+72	0026	0	
	+TYC	A	0570	+72	0003	0	
	+TYC	sp.		+72	0004	0	
	+CLA	Qtr Cr Hrs.	1	+00	0625	0	} Qtr Cr Hrs @ 'b39 @ 'b15'
	+ALS	24		+41	0030	0	

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+STO	PTS	0572	+60	0627	0
+CLA	Qtr. Pts.		+00	0626	0
+DSR	Qtr. & Hrs.	3	+21	0627	0
+TRA			+57	0716	0
+TYC	Space	4	+72	0004	0
+TYC	Space		+72	0004	0
+TYC	Space	5	+72	0004	0
+TYC	LTRS		+72	0037	0
+TYC	C	6	+72	0016	0
+TYC	N		+72	0007	0
+TYC	M	7	+72	0034	0
+TYC	Space		+72	0004	0
+TYC	H	0600	+72	0024	0
+TYC	R		+72	0012	0
+TYC	S	1	+72	0005	0
+TYC	Space		+72	0004	0
+CLA	Qtr. Cr. Hrs.	2	+00	0625	0
+ADD	Cum. Hrs.		+01	0500	0
+TRA		3	+57	0724	0
+TYC	Space		+72	0004	0
+TYC	Space	4	+72	0004	0
+TYC	Space		+72	0004	0
+TYC	LTRS	5	+72	0037	0
+TYC	C		+72	0016	0
+TYC	N	6	+72	0007	0
+TYC	M		+72	0034	0
+TYC	Space	7	+72	0004	0
+TYC	Q		+72	0027	0
+TYC	P	0610	+72	0026	0
+TYC	T		+72	0020	0
+TYC	S	1	+72	0005	0
+TYC	Space		+72	0004	0
+CLA	Qtr. Q. Pts.	2	+00	0626	0
+ADD	Cum. Q. Pts.		+01	0501	0
+TRA		3	+57	0730	0
+TYC	Space		+72	0004	0
+TYC	Space	4	+72	0004	0
+TYC	Space		+72	0004	0
<del>+TYC</del>		<del>5</del>	<del>+72</del>	<del>0037</del>	<del>0</del>
<del>+TYC</del>		<del>6</del>	<del>+72</del>	<del>0007</del>	<del>0</del>

Q. Cr. Pts @ 429

Qtr. Cr. Pts @ to 24  
# patch out to a type routine

A patch out to a type routine.

A patch out to a type routine.

+TYC	0615	+72 0037 0	
+TYC		+72 0015 0	
+TYC	6	+72 0007 0	
+TYC		+72 0034 0	
+TYC	7	+72 0004 0	
+TYC		+72 0032 0	
+TYC	0620	+72 0026 0	
+TYC		+72 0003 0	
+TYC	1	+72 0004 0	
+CLA	CUM Cr. Hrs	+00 0500 0	CUM Cr. Hrs @ b39
+ALS	24	+41 0030 0	CUM Cr Hrs @ b15
+STO	TS	+60 7760 0	0646
+CLA	CUM Q. Pts.	+00 0500 0	CUM GPA @ b24
+DSR	TS	+21 7760 0	
+TRA		+57 0734 0	Out to a type routine.
+HTR	0500	+77 0500 0	End of routine for one student
<del>+CLA</del>		+00 0000 0	} Qtr. Cr. Hrs @ b39
<del>-CLA</del>		-00 0025 0	
<del>+CLA</del>		+00 0000 0	} Qtr. Q. Pts @ b39
<del>-CLA</del>		-00 0050 1	
<del>+CLA</del>		+00 0520 0	} TS2
<del>-CLA</del>		-00 0000 0	
<del>+CLA</del>	0630	+00 0000 0	} 10 @ b39
<del>-CLA</del>		-00 0005 0	
+CLA	3 b39	+00 0634 0	
+TRA	b	+57 0700 0	
<del>+CLA</del>		+00 0000 0	} 1 b39
<del>-CLA</del>		-00 0000 1	
<del>+CLA</del>		+00 0000 0	} 2 b39
<del>-CLA</del>		-00 0001 0	
<del>+CLA</del>		+00 0000 0	} 3 b39
<del>-CLA</del>		-00 0001 1	
<del>+CLA</del>		+00 0000 0	} 4 b39
<del>-CLA</del>		-00 0002 0	
+CLA	6 b39	+00 0644 0	
+TRA	b	+57 0700 0	
+CLA	7 b39	+00 0643 0	
+TRA	b	+57 0700 0	



<del>+CLA</del>		0640	+00 0000 0	}	5 b3,
<del>-CLA</del>			-00 0002 1		
<del>+CLA</del>		1	+00 0000 0	}	6 b39
<del>-CLA</del>			-00 0003 0		
+CLA	4 b39	2	+00 0635 0		
+TRA	b		+57 0700 0		
<del>+CLA</del>		3	+00 0000 0	}	7 b39
<del>-CLA</del>			-00 0003 1		
<del>+CLA</del>		4	+00 0000 0	}	8 b39
<del>-CLA</del>			-00 0004 0		
<del>+CLA</del>		5	+00 0000 0	}	9 b39
<del>-CLA</del>			-00 0004 1		
<del>+CLA</del>		6	+00 0000 0	}	TS1
<del>-ESE</del>			-10 2275 1		
<del>+CLA</del>		7	+00 0000 0	}	TS2
<del>-CLA</del>			-00 0001 1		
+CLA	5 b39	0650	+00 0640 0		
+TRA	b		+57 0700 0		
+STO	TS1	1	+60 0646 0	}	Word for b1
+TRA	C		+57 7764 0		
+STO	TS2	2	+60 0647 0	}	Word for b2
+CLA	TS1		+00 0646 0		
+CLA	2 b39	3	+00 0633 0		
+TRA	b		+57 0700 0		
<del>+CLA</del>		4	+00 0000 0	}	b30, a b38
<del>-CLA</del>			-00 0630 0		
+CLA	6 b39	5	+00 0641 0		
+TRA	b		+57 0700 0		
+CLA	Zero	6	+00 0511 0		
+TRA	b		+57 0700 0		
+CLA	1 b39	7	+00 0632 0		
+TRA	b		+57 0700 0		
+CLA	9 b39	0660	+00 0645 0		
+TRA	b		+57 0700 0		
+CLA		1	+00 0645 0	}	Not used.
+TRA			+57 0677 0		
+CLA		2	+00 0645 0		
+TRA			+57 0677 0		

	+CLA	0662	+00 0645 0	} Not used.
	+TRA		+57 0677 0	
	+CLA	3	+00 0645 0	}
	+TRA		+57 0677 0	
	+CLA TS1	4	+00 0646 0	The "Number" was a decimal point. STφ Cr. Hrs.
	+STO 0551		+60 0551 0	
	+TRA 0553	5	+57 0552 0	Back to program to compute Q.Pts.
	+ARS NOP		+40 0000 0	
	+CLA	6	+00 0651 0	} Set b = b <sub>1</sub>
	+STO b		+60 0700 0	
	+CTL	7	+64 0670 0	}
	+TRA L.		+57 7760 0	
	+CLA <del>Zero</del>	0670	+00 0511 0	Type first digit of Cr. Hrs.
	+RDY 7761.0		+71 7761 0	
	+ALS 1	1	+41 0001 0	To address position.
	+SUB 630 <sub>8</sub> b38		+03 0654 0	
	+STA a	2	+42 7763 1	}
	+ARS NOP		+40 0000 0	
a	+ARS NOP	3	+40 0000 0	To jump table.
	+TRA [ ]		+57 0000 0	
c	+CLA <del>Zero</del>	4	+00 0511 0	Type 2 <sup>nd</sup> digit or a dec. pt.
	+RDY 7761.0		+71 7761 0	
	+ALS 1	5	+41 0001 0	To address position.
	+SUB 630 <sub>8</sub> b38		+03 0654 0	
	+STA d	6	+42 7767 1	} Set b = b <sub>2</sub>
	+CLA 0652		+00 0652 0	
d	+STO [ ]	7	+60 0700 0	To jump table.
	+TRA [ ]		+57 0000 0	
b	+STO	0700	+60 0647 0	}
	+CLA		+00 0646 0	
	+MPY 10 b39	1	+11 0630 0	} Mpy first of two digits by ten, add to second digit to form the total
	+XAR		+43 0000 0	
	+ADD TS2	2	+01 0647 0	}
	+STO Cr. Hrs.		+60 0551 0	
	+TRA 0552	3	+57 0552 0	}
	+ARS NOP		+40 0000 0	
	+CLA 39 b39	4	+00 0707 0	39 b39 → R
	+XAR		+43 0000 0	

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+CLA		0705	+00 0627 0	
+TRA	DM 016		+57 0100 0	To DM 016 to before line of Q. Pts.
<del>+CLA</del>		6	+00 0200 0	2 digits left of dec. pt., none after.
+TRA			+57 0556 1	
<del>+CLA</del>		7	+00 0000 0	} 39 to 39
<del>+TRA</del>			-00 0023 1	
+CLA	39 to 39	0710	+00 0707 0	
+XAR			+43 0000 0	39 to 39 → R
+CLA		1	+00 0625 0	Type Qtr. Cr. Hrs.
+TRA	DM 016		+57 0100 0	
<del>+CLA</del>		2	+00 0200 0	2 digits left of dec. pt., none to right.
+TRA			+57 0562 1	
+CLA	39 to 39	3	+00 0707 0	} 39 to 39 → R
+XAR			+43 0000 0	
+CLA		4	+00 0626 0	Type Qtr. Q. Pts.
+TRA	DM 016		+57 0100 0	
<del>+CLA</del>		5	+00 0200 0	2 digits left of dec. pt., none to right.
+TRA			+57 0564 0	
+STO	TS	6	+60 0722 0	} 24 to 39 → R
+CLA	24 to 39		+00 0723 0	
+XAR		7	+43 0000 0	
+CLA	TS		+00 0722 0	
+ARS	NOT	0720	+40 0000 0	Type Qtr. GPA
+TRA	DM 016		+57 0100 0	
<del>+CLA</del>		1	+00 0103 0	1 digit left of pt., 3 to the right
+TRA			+57 0574 0	
<del>+CLA</del>		2	+00 0000 0	} TS
<del>+TRA</del>			-00 0042 1	
<del>+CLA</del>		3	+00 0000 0	} 24 to 39
<del>+TRA</del>			-00 0014 0	
+STO	TS	4	+60 0722 0	Accumulated total hrs
+CLA	39 to 39		+00 0707 0	} 39 to 39 → R
+XAR		5	+43 0000 0	
+CLA			+00 0722 0	
+ARS	NOT	6	+40 0000 0	Type CUM HRS
+TRA	DM 016		+57 0100 0	
<del>+CLA</del>		7	+00 0300 0	3 digits left of pt., none on rt.
+TRA			+57 0603 1	

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+STO TS	0730	+60 0646 0	Cum Q Pts
+CLA 39 to 39		+00 0707 0	} 39 to 39 → R
+XAR	1	+43 0000 0	
+CLA TS		+00 0646 0	
+ARS NOP	2	+40 0000 0	Type Cum Q: Pts
+TRA AM 016		+57 0100 0	
<del>+CLA</del>	3	+00 0300 0	} 3 digits left, none right
+TRA		+57 0613 1	
+STO TS	4	+60 0646 0	} 24 to 39 → R
+CLA 24 to 39		+00 0723 0	
+XAR	5	+43 0000 0	
+CLA TS		+00 0646 0	
+ARS NOP	6	+40 0000 0	
+TRA AM 016		+57 0100 0	
<del>+CLA</del>	7	+00 0103 0	} 1 digit left, three right.
+HTR		+77 0500 0	

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