STAT 480: Midterm

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October 14, 2018

PROBLEM 1

Below is the output for question 1 in both text and an image format.

Figure 1.1: Question 1 Output

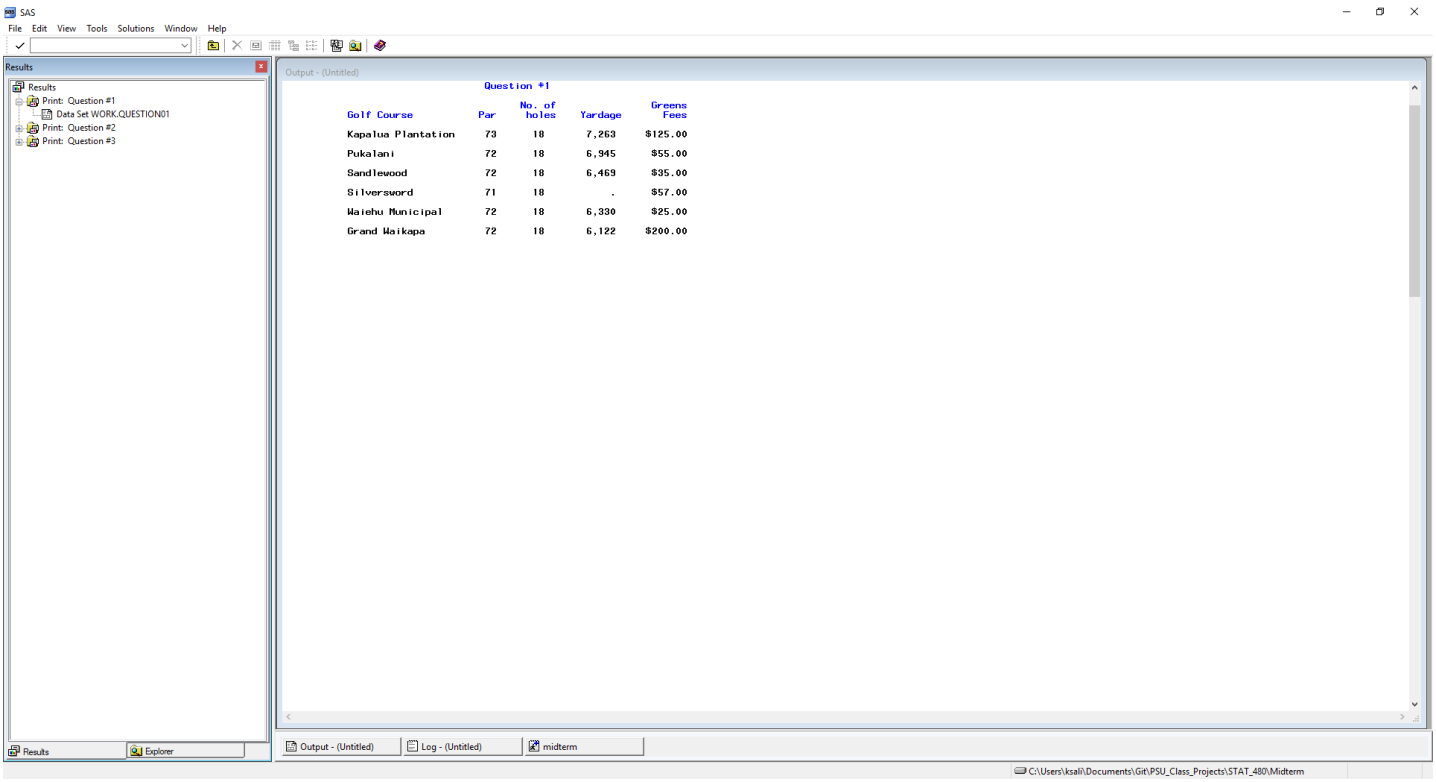

Figure 1.2: Question 1 Output Cropped

Question #1

Golf Course	Par	No. of holes	Yardage	Greens Fees
Kapalua Plantation	73	18	7,263	$125.00
Pukalani	72	18	6,945	$55.00
Sandlewood	72	18	6,469	$35.00
Silversword	71	18	.	$57.00
Waiehu Municipal	72	18	6,330	$25.00
Grand Waikapa	72	18	6,122	$200.00

```
                         Question #1

                              No. of                   Greens
      Golf Course      Par     holes     Yardage         Fees

      Kapalua Plantation   73      18       7,263      $125.00

      Pukalani             72      18       6,945       $55.00

      Sandlewood           72      18       6,469       $35.00

      Silversword          71      18           .       $57.00

      Waiehu Municipal     72      18       6,330       $25.00

      Grand Waikapa        72      18       6,122      $200.00
```

Listing 1: Question 1 Output

PROBLEM 2

Below is the output for question 2 in both text and an image format.

Figure 2.1: Question 2 Output

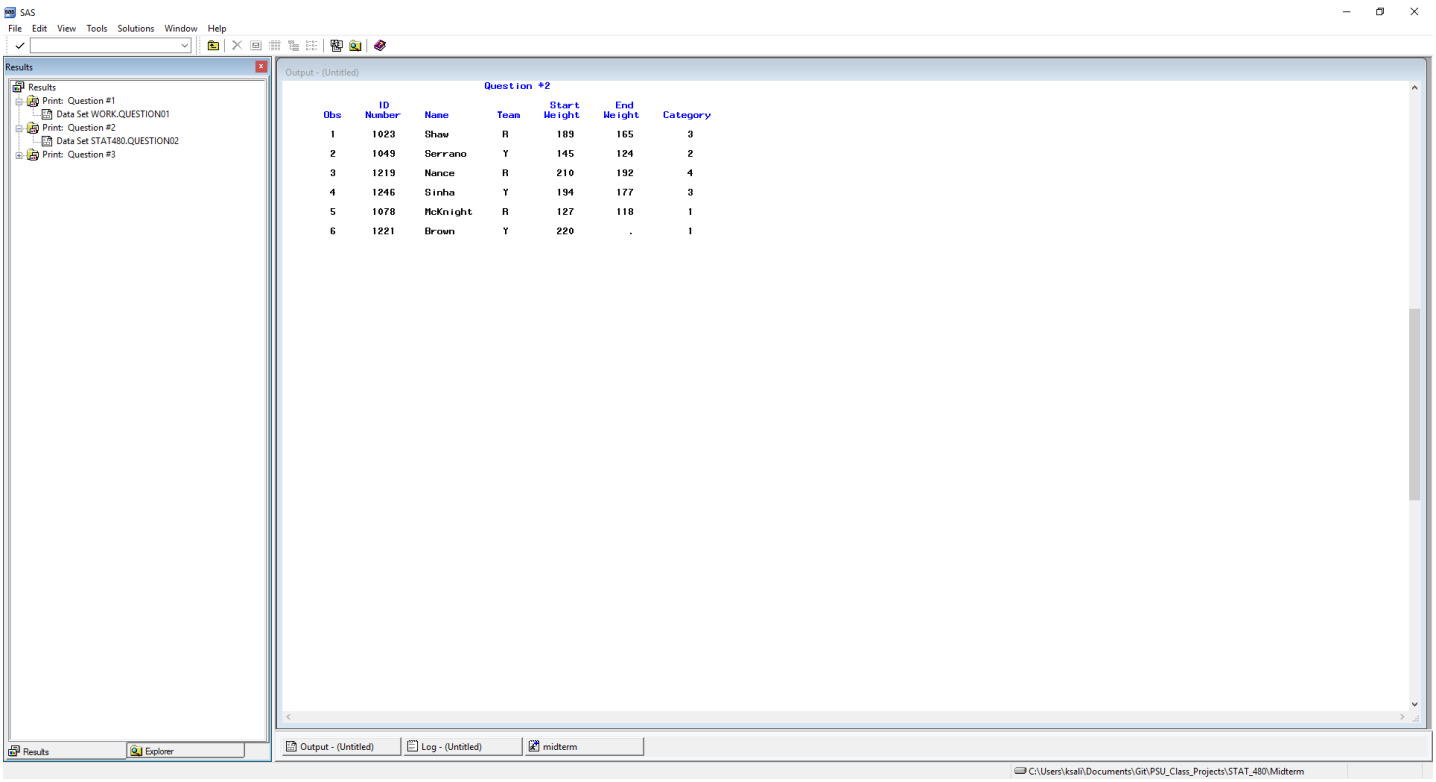

Figure 2.2: Question 2 Output Cropped

Question #2

Obs	ID Number	Name	Team	Start Weight	End Weight	Category
1	1023	Shaw	R	189	165	3
2	1049	Serrano	Y	145	124	2
3	1219	Nance	R	210	192	4
4	1246	Sinha	Y	194	177	3
5	1078	McKnight	R	127	118	1
6	1221	Brown	Y	220	.	1

Question #2

Obs	ID Number	Name	Team	Start Weight	End Weight	Category
1	1023	Shaw	R	189	165	3
2	1049	Serrano	Y	145	124	2
3	1219	Nance	R	210	192	4
4	1246	Sinha	Y	194	177	3
5	1078	McKnight	R	127	118	1
6	1221	Brown	Y	220	.	1

Listing 2: Question 2 Output

PROBLEM 3

Below is the output for question 3 in both text and an image format.

Figure 3.1: Question 3 Output

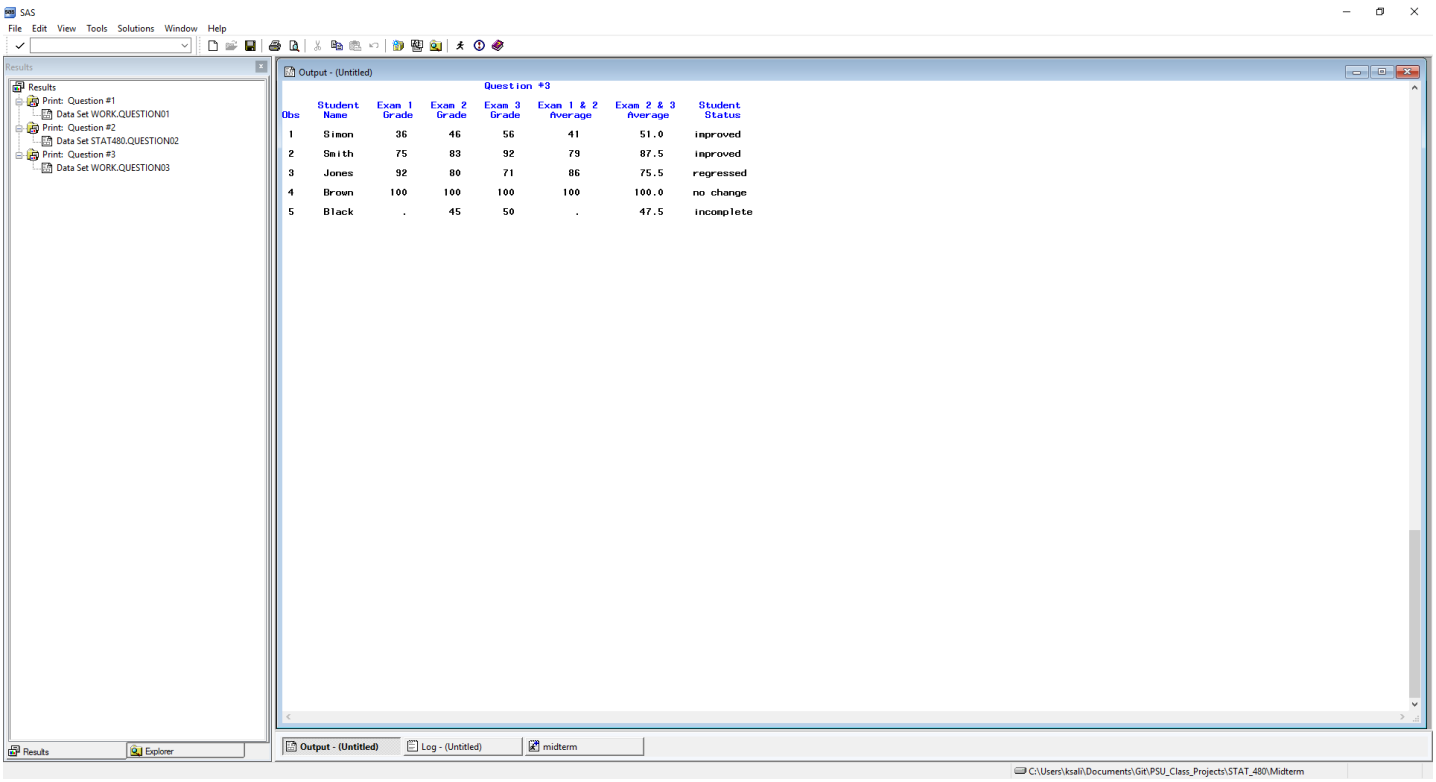

Figure 3.2: Question 3 Output Cropped

Question #3

Obs	Student Name	Exam 1 Grade	Exam 2 Grade	Exam 3 Grade	Exam 1 & 2 Average	Exam 2 & 3 Average	Student Status
1	Simon	36	46	56	41	51.0	improved
2	Smith	75	83	92	79	87.5	improved
3	Jones	92	80	71	86	75.5	regressed
4	Brown	100	100	100	100	100.0	no change
5	Black	.	45	50	.	47.5	incomplete

Question #3

Obs	Student Name	Exam 1 Grade	Exam 2 Grade	Exam 3 Grade	Exam 1 & 2 Average	Exam 2 & 3 Average	Student Status
1	Simon	36	46	56	41	51.0	improved
2	Smith	75	83	92	79	87.5	improved
3	Jones	92	80	71	86	75.5	regressed
4	Brown	100	100	100	100	100.0	no change
5	Black	.	45	50	.	47.5	incomplete

Listing 3: Question 3 Output

SAS Code

```
/*******************************************************
Kyle Salitrik
kps168
PSU ID: 997543474
Sept 14, 2018

This program covers the Midterm for STAT 480.
*******************************************************/

LIBNAME STAT480 'C:\STAT480\';

/*** QUESTION 1 ***/
DATA question01;
    * Read data using formatted input from raw data file;
    INFILE 'C:\STAT480\question01.dat';
    INPUT
        @1  name        $18.
        @20 holes       2.
        @23 par         2.
        @26 yardage     comma5.
        @32 fees        5.2
    ;
RUN;

PROC PRINT data=question01 SPLIT='\' DOUBLE;
    /*
        Limit output width to 80
        Limit output lines to 58
        Suppress printing date
        Suppress printing output number
        Center output
    */
    OPTIONS LS=80 PS=58 NODATE NONUMBER CENTER;

    /* Set output variable order */
    var par holes yardage fees;

    /* Set title for observations */
    id name;

    /* Set title */
    title 'Question #1';

    /* Set Labels and output formats */
    label
        name    =   'Golf Course'
        holes   =   'No. of\holes'
        par     =   'Par'
        yardage =   'Yardage'
        fees    =   'Greens\Fees'
        ;

    format
        yardage comma5.
        fees DOLLAR7.2
        ;
RUN;

DATA stat480.question02;
    * Read data using formatted input from raw data file;
    INFILE 'C:\STAT480\question02.dat';
    INPUT idno name $ team $ strtwght endwght;

    /* Determine weight categories */
```

```
65          IF (endwght LT 120)         THEN category = 1;
66      ELSE IF (120 LE endwght LT 150) THEN category = 2;
67      ELSE IF (150 LE endwght LT 180) THEN category = 3;
68      ELSE IF (endwght GE 180)        THEN category = 4;
69  RUN;
70
71  PROC PRINT data=stat480.question02 SPLIT='\' DOUBLE;
72      /*
73          Limit output width to 80
74          Limit output lines to 58
75          Suppress printing date
76          Suppress printing output number
77          Center output
78      */
79      OPTIONS LS=80 PS=58 NODATE NONUMBER CENTER;
80
81      /* Set title */
82      title 'Question #2';
83
84      /* Set variable output labels */
85      label
86          idno        =   'ID\Number'
87          name        =   'Name'
88          team        =   'Team'
89          strtwght    =   'Start\Weight'
90          endwght     =   'End\Weight'
91          category    =   'Category'
92          ;
93  RUN;
94
95  DATA question03;
96      SET 'C:\STAT480\question03.sas7bdat';
97
98      /* Calculate exam averages */
99      average1 = (grade1+grade2)/2;
100     average2 = (grade2+grade3)/2;
101
102     /* Determine student status values */
103          IF (average1 EQ .) OR (average2 EQ .)  THEN status = "incomplete";
104     ELSE IF (average1 EQ average2)              THEN status = "no change";
105     ELSE IF (average1 LT average2)              THEN status = "improved";
106     ELSE IF (average1 GT average2)              THEN status = "regressed";
107 RUN;
108
109 PROC PRINT data=question03 SPLIT = '\' DOUBLE;
110     /*
111         Limit output width to 80
112         Limit output lines to 58
113         Suppress printing date
114         Suppress printing output number
115         Center output
116     */
117     OPTIONS LS=80 PS=58 NODATE NONUMBER CENTER;
118
119     /* Set title */
120     title 'Question #3';
121
122     /* Set variable output order */
123     var student grade1 grade2 grade3 average1 average2 status;
124
125     /* Set variable output labels */
126     label
127         student     = 'Student\Name'
128         grade1      = 'Exam 1\Grade'
129         grade2      = 'Exam 2\Grade'
130         grade3      = 'Exam 3\Grade'
```

```
        average1    = 'Exam 1 & 2\Average'
        average2    = 'Exam 2 & 3\Average'
        status      = 'Student\Status'
        ;
RUN;
```

SAS Log File

```
1     /*******************************************************
2     Kyle Salitrik
3     kps168
4     PSU ID: 997543474
5     Sept 14, 2018
6
7     This program covers the Midterm for STAT 480.
8     *******************************************************/
9
10    LIBNAME STAT480 'C:\STAT480\';
NOTE: Libref STAT480 was successfully assigned as follows:
      Engine:        V9
      Physical Name: C:\STAT480
11
12    /*** QUESTION 1 ***/
13    DATA question01;
14        * Read data using formatted input from raw data file;
15        INFILE 'C:\STAT480\question01.dat';
16        INPUT
17            @1  name        $18.
18            @20 holes       2.
19            @23 par         2.
20            @26 yardage     comma5.
21            @32 fees        5.2
22        ;
23    RUN;

NOTE: The infile 'C:\STAT480\question01.dat' is:
      Filename=C:\STAT480\question01.dat,
      RECFM=V,LRECL=32767,File Size (bytes)=232,
      Last Modified=14Oct2018:13:38:28,
      Create Time=14Oct2018:13:38:28

NOTE: 6 records were read from the infile 'C:\STAT480\question01.dat'.
      The minimum record length was 37.
      The maximum record length was 37.
NOTE: The data set WORK.QUESTION01 has 6 observations and 5 variables.
NOTE: DATA statement used (Total process time):
      real time           0.04 seconds
      cpu time            0.04 seconds


24
25    PROC PRINT data=question01 SPLIT='\' DOUBLE;
26        /*
27            Limit output width to 80
28            Limit output lines to 58
29            Suppress printing date
30            Suppress printing output number
31            Center output
32        */
33        OPTIONS LS=80 PS=58 NODATE NONUMBER CENTER;
34
35        /* Set output variable order */
36        var par holes yardage fees;
37
```

```
57 38        /* Set title for observations */
58 39        id name;
59 40
60 41        /* Set title */
61 42        title 'Question #1';
62 43
63 44        /* Set Labels and output formats */
64 45        label
65 46            name    =   'Golf Course'
66 47            holes   =   'No. of\holes'
67 48            par     =   'Par'
68 49            yardage =   'Yardage'
69 50            fees    =   'Greens\Fees'
70 51            ;
71 52
72 53        format
73 54            yardage comma5.
74 55            fees DOLLAR7.2
75 56            ;
76 57    RUN;
77
78 NOTE: There were 6 observations read from the data set WORK.QUESTION01.
79 NOTE: PROCEDURE PRINT used (Total process time):
80       real time           0.06 seconds
81       cpu time            0.06 seconds
82
83
84 58
85 59    DATA stat480.question02;
86 60        * Read data using formatted input from raw data file;
87 61        INFILE 'C:\STAT480\question02.dat';
88 62        INPUT idno name $ team $ strtwght endwght;
89 63
90 64        /* Determine weight categories */
91 65             IF (endwght LT 120)        THEN category = 1;
92 66        ELSE IF (120 LE endwght LT 150) THEN category = 2;
93 67        ELSE IF (150 LE endwght LT 180) THEN category = 3;
94 68        ELSE IF (endwght GE 180)        THEN category = 4;
95 69    RUN;
96
97 NOTE: The infile 'C:\STAT480\question02.dat' is:
98       Filename=C:\STAT480\question02.dat,
99       RECFM=V,LRECL=32767,File Size (bytes)=147,
100      Last Modified=14Oct2018:13:38:29,
101      Create Time=14Oct2018:13:38:29
102
103 NOTE: 6 records were read from the infile 'C:\STAT480\question02.dat'.
104      The minimum record length was 22.
105      The maximum record length was 23.
106 NOTE: The data set STAT480.QUESTION02 has 6 observations and 6 variables.
107 NOTE: DATA statement used (Total process time):
108      real time           0.02 seconds
109      cpu time            0.01 seconds
110
111
112 70
113 71    PROC PRINT data=stat480.question02 SPLIT='\' DOUBLE;
114 72        /*
115 73            Limit output width to 80
116 74            Limit output lines to 58
117 75            Suppress printing date
118 76            Suppress printing output number
119 77            Center output
120 78        */
121 79        OPTIONS LS=80 PS=58 NODATE NONUMBER CENTER;
122 80
```

```
81        /* Set title */
82        title 'Question #2';
83
84        /* Set variable output labels */
85        label
86            idno        =    'ID\Number'
87            name        =    'Name'
88            team        =    'Team'
89            strtwght    =    'Start\Weight'
90            endwght     =    'End\Weight'
91            category    =    'Category'
92            ;
93    RUN;
136
NOTE: There were 6 observations read from the data set STAT480.QUESTION02.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.02 seconds
      cpu time            0.01 seconds
141
142
143 94
144 95    DATA question03;
145 96        SET 'C:\STAT480\question03.sas7bdat';
146 97
147 98        /* Calculate exam averages */
148 99        average1 = (grade1+grade2)/2;
149 100       average2 = (grade2+grade3)/2;
150 101
151 102       /* Determine student status values */
152 103            IF (average1 EQ .) OR (average2 EQ .)  THEN status = "incomplete";
153 104       ELSE IF (average1 EQ average2)              THEN status = "no change";
154 105       ELSE IF (average1 LT average2)              THEN status = "improved";
155 106       ELSE IF (average1 GT average2)              THEN status = "regressed";
156 107   RUN;
157
NOTE: Missing values were generated as a result of performing an operation on
      missing values.
      Each place is given by: (Number of times) at (Line):(Column).
      1 at 99:23
NOTE: There were 5 observations read from the data set
      C:\STAT480\question03.sas7bdat.
NOTE: The data set WORK.QUESTION03 has 5 observations and 7 variables.
NOTE: DATA statement used (Total process time):
      real time           0.02 seconds
      cpu time            0.03 seconds
168
169
170 108
171 109   PROC PRINT data=question03 SPLIT = '\' DOUBLE;
172 110       /*
173 111           Limit output width to 80
174 112           Limit output lines to 58
175 113           Suppress printing date
176 114           Suppress printing output number
177 115           Center output
178 116       */
179 117       OPTIONS LS=80 PS=58 NODATE NONUMBER CENTER;
180 118
181 119       /* Set title */
182 120       title 'Question #3';
183 121
184 122       /* Set variable output order */
185 123       var student grade1 grade2 grade3 average1 average2 status;
186 124
187 125       /* Set variable output labels */
188 126       label
```

```
127           student     = 'Student\Name'
128           grade1      = 'Exam 1\Grade'
129           grade2      = 'Exam 2\Grade'
130           grade3      = 'Exam 3\Grade'
131           average1    = 'Exam 1 & 2\Average'
132           average2    = 'Exam 2 & 3\Average'
133           status      = 'Student\Status'
134           ;
135   RUN;

NOTE: There were 5 observations read from the data set WORK.QUESTION03.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.02 seconds
      cpu time            0.01 seconds
```