



# German Malaysian Institute
# CIT-0513
## Computer And Programming
Class: DSET-1 , July 2021 PBL-3

Team Members: (Names and ID numbers)

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D I P L O M A P R O G R A M M E

# PBL ASSIGNMENT 3

**Academic Period : July 2021**

| Code | CIT 0513 | Course Name | COMPUTER & PROGRAMMING |
|---|---|---|---|
| Title | PBL 3 | Program/ Group | |
| TTO's Name | | | |

## DOCUMENTATION RUBRICS

| CRITERIA | MARKS ALLOCATED | MARKS (M) | | WEIGHTED MARKS OBTAINED |
|---|---|---|---|---|
| | | | | M/5 x 30% = |
| Program functionality in accordance with flowchart | 30% | **1** | There is no correlation of program functionality to flowchart | |
| | | **2** | There is little correlation of program functionality to flowchart | |
| | | **3** | There is partial correlation of program functionality to flowchart | |
| | | **4** | There is sufficient correlation of program functionality to flowchart | |
| | | **5** | There is complete correlation of program functionality to flowchart | |
| | | | | M/5 x 20% = |
| Clear coding layout and detailed comments for program code | 20% | **1** | No coding layout and program code comments | |
| | | **2** | Unclear coding layout and few program code comments | |
| | | **3** | Some coding layout and program code comments are available | |
| | | **4** | Coding layout and program code comments follow given formats | |
| | | **5** | All coding layout and program code comments follow given formats | |
| | | | | M/5 x 15% = |
| Selection of instructions based on the main | 15% | **1** | Instructions to follow main and sub-menu are not available | |
| | | **2** | Instructions do not follow main and sub-menu | |
| | | **3** | Instructions follow main and sub menu | |


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| | | | | |
|---|---|---|---|---|
| menu and sub-menu | | **4** | Instructions follow the main and sub-menu partially | |
| | | **5** | All instructions follow the main and sub-menu | |

| | | | | |
|---|---|---|---|---|
| | | | | M/5 x 5% = |
| Conclusion | 5% | 1 | Conclusion is not available | |
| | | 2 | No sensible conclusion | |
| | | 3 | A conclusion is drawn, but not supported by practical evidence | |
| | | 4 | A conclusion is drawn, but with some support of practical evidence | |
| | | 5 | A conclusion is drawn, with complete support of practical evidence | |
| | | | | M/5 x10% = |
| Documentation Format | 10% | **1** | The document was incorrectly formatted | |
| | | **2** | The document was partially formatted | |
| | | **3** | The document was adequately formatted | |
| | | **4** | The document was well formatted | |
| | | **5** | The document was very well formatted | |
| | | | | M/5 x10% = |
| Plagiarism | 10% | **1** | Plagiarism | |
| | | **2** | Inadequate citation | |
| | | **3** | Minimal citation | |
| | | **4** | Adequate Citation | |
| | | **5** | Original Work and proper citation | |
| **TOTAL** | 90% | | | / 90 |

**TEAMWORK RUBRICS**

| | | | | |
|---|---|---|---|---|
| | | | | M/5 x 5% = |
| Teamwork | 5% | **1** | Never contribute ideas, do not attend meetings | |
| | | **2** | Rarely contribute ideas, rarely attend meetings | |
| | | **3** | Sometimes contribute ideas, occasionally attend meetings | |
| | | **4** | Usually contribute useful ideas, attend most meetings | |
| | | **5** | Routinely contribute useful ideas, attend all meetings | |
| **TOTAL** | 5% | | | /5 |

**INDIVIDUAL RUBRICS**

| Student 01 Name: | | | | M/5 x 5% = |
|---|---|---|---|---|
| Defence ability (Individual) | 5% | **1** | Not able to answer questions, not prepared no confidence at all | |
| | | **2** | Able to answer questions but not prepared and has confidence | |
| | | **3** | Able to answer questions but with little preparation and confidence | |
| | | **4** | Able to answer questions well and has slight confidence and well prepared | |
| | | **5** | Able to all answer questions very well and | |


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| | | | | |
|---|---|---|---|---|
| | | | confidently. Very well prepared | |
| | | | **TOTAL INDIVIDUAL** | /5 |

| Student 02 Name: | | | | M/5 x 5% = |
|---|---|---|---|---|
| Defence ability (Individual) | 5% | **1** | Not able to answer questions, not prepared no confidence at all | |
| | | **2** | Able to answer questions but not prepared and has confidence | |
| | | **3** | Able to answer questions but with little preparation and confidence | |
| | | **4** | Able to answer questions well and has slight confidence and well prepared | |
| | | **5** | Able to all answer questions very well and confidently. Very well prepared | |
| | | | **TOTAL INDIVIDUAL** | /5 |

| Student 03 Name: | | | | M/5 x 5% = |
|---|---|---|---|---|
| Defence ability (Individual) | 5% | **1** | Not able to answer questions, not prepared no confidence at all | |
| | | **2** | Able to answer questions but not prepared and has confidence | |
| | | **3** | Able to answer questions but with little preparation and confidence | |
| | | **4** | Able to answer questions well and has slight confidence and well prepared | |
| | | **5** | Able to all answer questions very well and confidently. Very well prepared | |
| | | | **TOTAL INDIVIDUAL** | /5 |

| Student 04 Name: | | | | M/5 x 5% = |
|---|---|---|---|---|
| Defence ability (Individual) | 5% | **1** | Not able to answer questions, not prepared no confidence at all | |
| | | **2** | Able to answer questions but not prepared and has confidence | |
| | | **3** | Able to answer questions but with little preparation and confidence | |
| | | **4** | Able to answer questions well and has slight confidence and well prepared | |
| | | **5** | Able to all answer questions very well and confidently. Very well prepared | |
| | | | **TOTAL INDIVIDUAL** | /5 |

**PBL ASSIGNMENT 3 OVERALL MARKS**

| | **STUDENT 01** | **STUDENT 02** | **STUDENT 03** | **STUDENT 04** |
|---|---|---|---|---|
| DOCUMENTATION (90%) | | | | |
| TEAMWORK (%5) | | | | |
| INDIVIDUAL (5%) | | | | |
| OVERALL TOTAL (100%) | | | | |


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# PROBLEM STATEMENT 3

Develop a software package in accordance to the operational flowchart which was designed in PBL Assignment 2. The software package must include full documentation of the project, and supporting documents needed when using the software package.

| | |
|---|---|
| **KNOW** | 1. How to convert flowchart to c coding<br>2. The function of while loop<br>3. How to make a function call |
| **DON'T KNOW** | 1. What command need to be used to clear screen<br>2. How to make a delay in programming<br>3. How to put only two decimal places output |
| **NEED TO FIND OUT** | 1. Command used to clear screen<br>2. How to make a delay in programming<br>3. How to put only two decimal places output |


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# Table Of Content




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# Introduction

Our team have designed a teaching software named 'Multicalc' that used the basic calculation about area calculation, basic electrical calculation and basic force and motion calculation. Multicalc will help student in calculating simple mathematical calculation. This software provide calculation for area calculation, resistance and voltage calculation, average speed and displacement calculation.


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# Program Code

```
#include <stdio.h>                                  /*Pre-processor directive*/
                                                    /*stdio.h-handle input output function*/



int choice;                                         /*Variable for Main menu*/



                                                     /*Variable for Force and Motion*/
float D1,T1,AS;                                     /*Variable for Average Speed*/

float D2,T2,V;                                      /*Variable for Velocity*/



char Z;                                             /*Variable for Sub Menu*/



char CH;                                            /*Variable for Repeat*/

char ch;                                            /*Variable for Repeat*/



                                                    /*Variable for Area*/

int pick;                                           /*Variable for sub menu choice*/



float S, pi, J;                                       /*Variable For Sphere*/
float pi=3.14159265359;



float C, r, h;                                      /*Variable for cylinder*/



float V1,I1,R1;                                     /*Variable for Resistance*/



float V2,I2,R2;                                     /*Variable for Voltage*/



char choose;                                        /*Variable for Sub Menu*/
```


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```
64
65
66
67  int main()                                                  /* Main Body*/
68
69
70  {
71
72
73      do                                                      /*Initialization of Do-While Loop*/
74                                                              /*Main Menu Do-While Loop*/
75
76
77      {
78
79
80
81
82      multicalc:                                               /*goto label*/
83                                                               /*multicalc label*/
84
85
86
87
88      system ("cls");                                          /*Clear Screen*/
89
90
91
92
93
94      printf("\t\tI================================I\n");
95      printf("\t\tI          Multi Calc            I\n");
96      printf("\t\tI================================I\n");
97
98      printf("\n\t1. Area\n");                                 /*Main Menu*/
99
100     printf("\t2. Electricity\n");                          /*Refer Figure 1*/
101
102     printf("\t3. Force And Motion\n");
103
104     printf("\t4. End\n");
105
106
107
108
109
110     printf("\n\tEnter Choice:");                             /*Enter Choice*/
111                                                              /*printf-handle output function*/
112
113
114
115     scanf("%d", &choice);                                    /*Input Choice*/
116                                                              /*scanf-handle input function*/
117
118
119
120
121     switch(choice)                                           /*Initialization of Switch*/
122                                                              /*Main Menu Switch*/
```


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```
120
121       switch(choice)                                          /*Initialization of Switch*/
122                                                               /*Main Menu Switch*/
123
124
125
126       {
127
128
129       case 1:                                                 /*Area Case*/
130
131
132
133
134       system ("cls");
135
136
137
138
139
140         area:                                                 /*goto label*/
141                                                               /*area label*/
142
143
144
145
146               do                                              /*Nested Do-While Loop*/
147                                                               /*Initialization Of Do-While Loop*/
148                                                               /*Area Do-While Loop*/
149
150
151
152               {
153
154
155
156         pick:
157
158
159
160
161        system("cls");
162
163
164
165
166         printf("\t\tI================================I\n");
167         printf("\t\tI     SURFACE AREA CALCULATION    I\n");
168         printf("\t\tI================================I\n\n");
169
170         printf("\t1. Surface Area of a Sphere\n");                 /*Area Submenu*/
171
172         printf("\t2. Surface Area of a Clylinder\n");              /*Refer Figure 2*/
173
174         printf("\t3. End\n");
175
176
177
178         printf("\tChoice: ");
179
180
181
182
183         scanf("%d", &pick);
184
185
186
187
188         system("cls");
189
190
```


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```
192
193         switch(pick)                                                    /*Nested Switch*/
194                                                                         /*Initialization of Switch*/
195                                                                         /*Area Switch*/
196
197
198         {
199
200
201
202         case 1:                                                         /*Area-Sphere Case*/
203
204
205
206
207         system ("cls");
208
209
210
211
212           sfera:                                                        /*Goto label*/
213                                                                         /*Sphere Label*/
214
215
216
217
218           printf("\t\tI================================I\n");
219           printf("\t\tI              Sphere            I\n");
220           printf("\t\tI================================I\n\n");        /*Area of Sphere*/
221
222           printf("Enter value radius(cm)\n");                           /*Refer Figure 2.1*/
223
224           scanf("%f",&J);
225
226
227
228           S= (4*pi) * (J*J);                                            /*Surface Area of Sphere Formula*/
229
230
231
232
233
234           printf("The surface area of sphere is equal to %.2f cmsq\n",S);    /*Display Answer*/
235
236
237
238
239           printf("Do you want to continue?(y/n)\n");
240
241
242
243                     printf("choice: ");
244
245
246
247
248                     scanf(" %c",&ch);
249
250
```


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```
253                 if(ch=='y'||ch=='Y')                                /*Initialization Of Loop*/
254
255
256
257                 {
258
259
260                     system("cls");                                  /*Clear Screen*/
261
262
263
264                     goto sfera;                                     /*go to sphere label*/
265
266
267                 }
268
269
270
271
272                     else
273
274
275
276                     system("cls");
277
278
279
280                     continue;                                        /*Continue Statement*/
281                                                                      /*Bypass all the code*/
282
```


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```
245
246
247
248                 scanf(" %c",&ch);
249
250
251
252
253                 if(ch=='y'||ch=='Y')                                    /*Initialization Of Loop*/
254
255
256
257                 {
258
259
260                     system("cls");                                      /*Clear Screen*/
261
262
263
264                     goto sfera;                                         /*go to sphere label*/
265
266
267                 }
268
269
270
271
272                     else
273
274
275
276                     system("cls");
277
278
279
280                     continue;                                           /*Continue Statement*/
281                                                                         /*Bypass all the code*/
282
283
284
285
286         case 2:                                                         /*Area-Cylinder Case*/
287
288
289
290
291           silinder:                                                     /*goto label*/
292                                                                         /*cylinder goto label*/
293
294
295
296
297
298           printf("\t\tI================================I\n");
299           printf("\t\tI             Cylinder           I\n");
300           printf("\t\tI================================I\n\n");
301           printf("Enter value of Radius(cm)\n");                         /*Area of Cylinder*/
302
303           scanf("%f",&r);                                               /*Refer Figure 2.2*/
304
305           printf("Enter height of the cylinder(cm)\n");
306
307           scanf("%f",&h);
308
309           C= ((2*pi) * (r*r)) + (h*(2*pi*r));                            /*Surface Area of Cylinder Formula*/
310
```


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```
310
311
312
313         printf("The surface area of cylinder is equal to %.2f cmsq\n",C);  /*Display Answer*/
314
315
316
317
318         printf("Do you want to continue?(y/n)\n");
319
320
321                 printf("choice: ");
322
323
324
325                 scanf(" %c",&ch);
326
327
328
329                 if(ch=='y'||ch=='Y')
330
331
332                 {
333
334
335                     system("cls");
336
337
338
339                     goto silinder;                                  /*go to cylinder label*/
340
341
342                 }
343
344
345                     else
346
347
348                     system("cls");
349
350
351                     continue;
352
353       case 3:                                                       /*Area-Return case*/
354
355
356
357
358
359
360     printf("\t\tI================================I\n");             /*Appreciation Text*/
361     printf("\t\tI          Thank You!!           I\n");             /*Refer Figure 5*/
362     printf("\t\tI================================I\n");
363
364
365
366     Sleep(1000);                                                    /*Time Delay*/
```


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```
367
368
369
370
371                         goto multicalc;                                     /*go to multicalc label*/
372
373
374
375
376         default:
377
378
379
380
381       printf("\t\tI================================I\n");
382       printf("\t\tI          !!Invalid!!           I\n");
383       printf("\t\tI      Please Choose Number      I\n");                   /*Invalid Text*/
384       printf("\t\tI        Between 1-3 Only        I\n");                   /*Refer Figure 6*/
385       printf("\t\tI          !!Invalid!!           I\n");
386       printf("\t\tI================================I\n");
387
388
389
390            Sleep(3000);
391
392
393         }                                                                   /*End of Area Nested Switch*/
394
395
396   }                                                                         /*End of Area Do-While Loop*/
397
398
399   while (pick != 3);
400
401
402
403
```


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```
404         case 2:                                                 /*Electricity Case*/
405
406
407
408           electricity:                                          /*goto label*/
409                                                                 /*Electricity label*/
410
411
412
413                 do{                                             /*Initialization Do-While Loop*/
414                                                                 /*Electricity Do-While Loop*/
415
416
417
418
419         choose:                                                 /*Goto label*/
420                                                                 /*Choose goto label*/
421
422
423
424
425         system("cls");                                          /*Clear Screen*/
426
427
428
429
430
431         printf("\t\tI================================I\n");
432         printf("\t\tI           Electricity          I\n");
433         printf("\t\tI================================I\n");     /*Electricity Sub Menu*/
434
435
436         printf("\t1. Calculate a Resistance\n");                 /*Refer Figure 3*/
437
438         printf("\t2. Calculate a Voltage\n");
439
440         printf("\t3. Return to main menu\n");
441
442
443
444         printf("\tChoice: ");
445
446
447
448
449         scanf("%d", &choose);                                    /*Input Funtion*/
450                                                                  /*%d-format specifier(signed integer)*/
451                                                                  /*&d-assignment operator*/
452                                                                  /*value of input will be stored in "choose" integer*/
453
454
455
456
457         system("cls");
458
```


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```
462         switch(choose)                                                  /*Nested Switch*/
463                                                                         /*Initialization of Switch*/
464                                                                         /*Electricity Switch*/
465
466
467         {
468
469
470
471         case 1:                                                         /*Electricity-Resistance Label*/
472
473
474
475
476           Resistance:                                                   /*Resistance goto label*/
477
478
479
480
481           printf("\t\tI================================I\n");
482           printf("\t\tI            Resistance          I\n");
483           printf("\t\tI================================I\n");           /*Resistance Calculation*/
484
485           printf("Enter value of voltage (V)\n");                       /*Refer Figure 3.1*/
486
487           scanf("%f",&V1);
488
489           printf("Enter value of current (A)\n");
490
491           scanf("%f",&I1);
492
493
494           R1=V1/I1;                                                     /*Resistance Label*/
495
496
497           printf("The resistance is equal to %.2f ohm\n\n",R1);         /*Display Answer*/
498
499
500           printf("Do you want to continue?(y/n)\n");
501
502
503
504                     printf("choice:");
505
506
507
508                     scanf(" %c",&ch);
```


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```
513                 if(ch=='y'||ch=='Y')
514
515
516                 {
517
518
519 system("cls");
520
521
522                     goto Resistance;                                    /*go to resistance label*/
523
524
525
526                 }
527
528
529
530                     else
531
532
533 system("cls");
534
535
536
537                     continue;                                           /*Continue statement*/
538                                                                         /*Bypass all the code*/
```


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```
543         case 2:                                                    /*Electricity-Voltage case*/
544
545
546
547
548
549           Voltage:                                                 /*Voltage goto label*/
550
551
552
553
554           printf("\t\tI================================I\n");
555           printf("\t\tI             Voltage            I\n");
556           printf("\t\tI================================I\n");       /*voltage Calculation  menu*/
557
558           printf("Enter value of current (A)\n");                  /*Refer figure 3.2*/
559
560           scanf("%f",&I2);
561
562           printf("Enter value of resistance (ohm)\n");
563
564           scanf("%f",&R2);
565
566
567
568           V2=I2*R2;                                                /*Voltage formula*/
569
570
571
572
573           printf("The Voltage is equal to %.2fV\n\n",V2);
574
575
576
577           printf("Do you want to continue?(y/n)\n");
578
579
580
581                     printf("choice:");
582
583
584
585                     scanf(" %c",&ch);
```


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```
590                 if(ch=='y'||ch=='Y')                                    /*If-Else statement*/
591
592
593
594                 {
595
596
597
598 system("cls");
599
600
601
602
603                     goto Voltage;                                       /*Go to voltage label*/
604
605
606
607
608
609                 }
610
611
612
613
614                     else
615
616
617
618
619
620
621                     continue;
622
623
624
625 system("cls");
```


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```
629         case 3:                                                    /*Electricity- Return case*/
630
631
632
633
634       printf("\t\tI================================I\n");
635       printf("\t\tI          Thank You!!           I\n");          /*Appreciation Text*/
636       printf("\t\tI================================I\n");          /*Refer Figure 5*/
637
638
639
640
641
642       Sleep(1000);                                                 /*Time delay*/
643
644
645
646
647
648
649           goto multicalc;                                          /*go to resistance label*/
650                                                                    /*Return to main menu*/
651
652
653
654
655
656         default:                                                   /*Default statement*/
657                                                                    /*execured when switch expression does not match with any case*/
658
659
660
661
662
663
664
665       printf("\t\tI================================I\n");
666       printf("\t\tI          !!Invalid!!           I\n");
667       printf("\t\tI      Please Choose Number      I\n");          /*Invalid Text*/
668       printf("\t\tI        Between 1-3 Only        I\n");          /*Refer Figure 6*/
669       printf("\t\tI          !!Invalid!!           I\n");
670       printf("\t\tI================================I\n");
671
672
673
674
675           Sleep(3000);
676
677
678
679
680
681         }                                                           /*Ending of electricity nested switch*/
682
683
684
685
686   }                                                                 /*Ending Electricity Do-While Loop*/
687
688
689   while (choose != 3);
690
```


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```
695         case 3:                                                    /*Fore and motion case*/
696
697
698
699
700
701           forceandmotion:                                          /*Forceandmotion goto label*/
702
703
704
705
706
707        do                                                          /*Initialization F&M Do-While Loop*/
708
709
710
711
712       {
713
714
715   system("cls");
716
717
718
719
720       printf("\t\tI================================I\n");
721       printf("\t\tI          Force & Motion        I\n");
722       printf("\t\tI================================I\n");          /*FnM Sub Menu*/
723
724       printf("\n\t1. Average Speed \n");                           /*Refer Figure 4*/
725
726       printf("\t2. Velocity\n");
727
728       printf("\t3. Return to Main Menu\n");
729
730
731
732
733
734
735       printf("\n\tEnter Choice:");                                  /*printf-handle output function*/
736
737
738
739       scanf("%d", &Z);                                             /*scanf-handle input funcction*/
740                                                                    /*%-format specifier*/
741                                                                    /*&-assignment operator*/
742
743
744
745
746
747   system("cls");
```


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```
754     switch(Z)                                                    /*Initialization of nested-switch*/
755                                                                  /*Fore and motion nested switch*/
756
757
758
759
760     {
761
762
763
764         case 1:                                                  /*F&M-AverageSpeed case*/
765
766
767
768
769         AverageSpeed:                                            /*Averagespeed goto label*/
770
771
772
773
774
775
776
777     printf("\t\tI================================I\n");
778     printf("\t\tI           Average Speed        I\n");          /*Average Speed Calculator*/
779     printf("\t\tI================================I\n");          /*Refer Figure 4.1*/
780
781
782
783
784     printf("\nEnter Total Distance (m):\n");
785
786     scanf("%f",&D1);
787
788     printf("Enter Total Time (s)\n");
789
790     scanf("%f",&T1);
791
792     AS=D1/T1;                                                    /*Average Speed formula*/
793
794
795     printf("\nThe Average Speed is %.2f m/s\n",AS);            /*Display answer*/
796
797
798     printf("\nDo you want to repeat ? (y/n)\n");
799
800     printf("\tChoice:");
801
802
803
804     scanf(" %c", &CH);
```


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```
807      if (CH == 'y' || CH == 'Y')
808
809
810          {
811
812
813
814   system("cls");
815
816
817
818          goto AverageSpeed;                                          /*go to average speed label*/
819
820
821
822
823          }
824
825
826
827           else
828
829
830
831          continue;
832
833
```


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```
836          case 2:                                                    /*F&M-Velocity case*/
837
838
839
840
841
842              Velocity:                                              /*Velocity goto label*/
843
844
845
846   system ("cls");
847
848
849
850
851
852
853       printf("\t\tI================================I\n");
854       printf("\t\tI            Velocity            I\n");
855       printf("\t\tI================================I\n");            /*Velocity Calculator*/
856
857       printf("\nEnter Displacement (m)\n");                          /*Refer Figure 4.2*/
858
859       scanf("%f",&D2);
860
861       printf("Enter Time (s)\n");
862
863       scanf("%f",&T2);
864
865       V=D2/T2;
866
867       printf("\nThe Velocity is %.2f m/s\n",V);
868
869
870       printf("\nDo you want to repeat ? (y/n)\n");
871
872
873       printf("\tChoice:");
874
875
876       scanf(" %c", &CH);
877
```


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```
881       if (CH == 'y' || CH == 'Y')
882
883
884       {
885
886
887
888   system("cls");
889
890
891
892           goto Velocity;                                                    /*go to velocity label*/
893
894
895
896       }
897
898
899
900       else
901
902
903
904
905           continue;
```


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```
910          case 3:                                                    /*F&M-Return case*/
911
912
913
914
915       printf("\t\tI================================I\n");
916       printf("\t\tI          Thank You!!           I\n");           /*Appreciation Text*/
917       printf("\t\tI================================I\n");           /*Refer Figure 5*/
918
919
920
921
922         Sleep(1000);
923
924
925
926
927                goto multicalc;                                       /*go to multicalc label*/
928
929
930
931
932
933          default:
934
935
936
937
938       printf("\t\tI================================I\n");
939       printf("\t\tI          !!Invalid!!           I\n");
940       printf("\t\tI      Please Choose Number      I\n");            /*Invalid Text*/
941       printf("\t\tI        Between 1-3 Only        I\n");            /*Refer Figure 6*/
942       printf("\t\tI          !!Invalid!!           I\n");
943       printf("\t\tI================================I\n");
944
945
946
947
948                Sleep(3000);
949
950
951
952
953
954       }                                                              /*Ending of F&M Nested switch*/
955
956
957
958
959       }                                                              /*Ending of F&M Do-While Loop*/
960
961
962       while(Z!=3);
963
```


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```
        case 4:                                                     /*End program case*/



system("cls");




    printf("\t\tI================================I\n");
    printf("\t\tI          Thank You!!           I\n");            /*Appreciation Text*/
    printf("\t\tI================================I\n");            /*Refer Figure 5*/


    Sleep(1000);


    break;                                                         /*Break statement*/
                                                                   /*Exit case or loop*/


        default:


system("cls");


    printf("\t\tI================================I\n");
    printf("\t\tI           !!Invalid!!          I\n");
    printf("\t\tI      Please Choose Number      I\n");            /*Invalid Text*/
    printf("\t\tI        Between 1-4 Only        I\n");            /*Refer Figure 6*/
    printf("\t\tI          !!Invalid!!           I\n");
    printf("\t\tI================================I\n");


            Sleep(3000);


    }                                                              /*Ending of main menu switch*/


    }                                                               /*Ending of main menu Do-While Loop*/


    while (choice != 4);


    return 0;                                                      /*Return statement*/
                                                                   /*Successfully execute programme*/


}                                                                  /*Ending of main body*/
```


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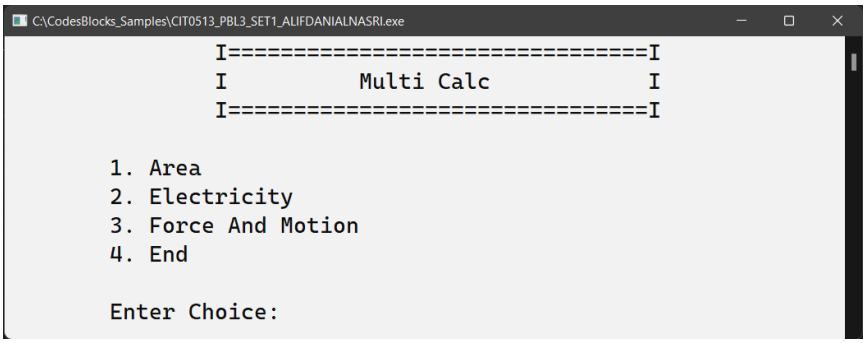
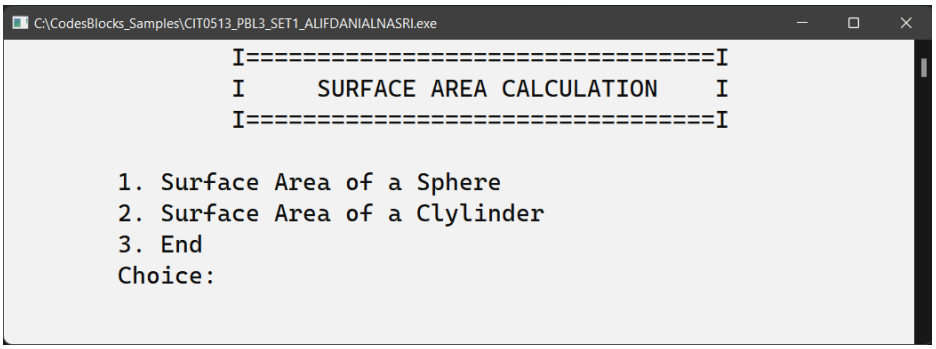
# Program Outputs

| Figure 1. | Main Menu |
|---|---|




| Figure 2. | Area Sub Menu |
|---|---|





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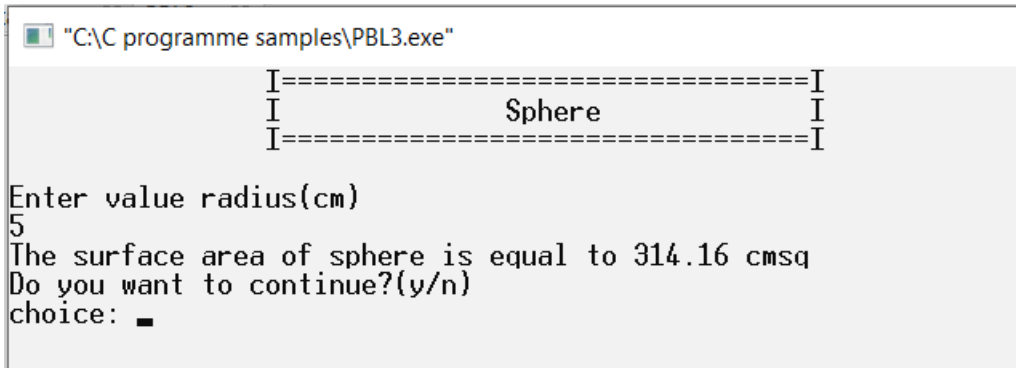
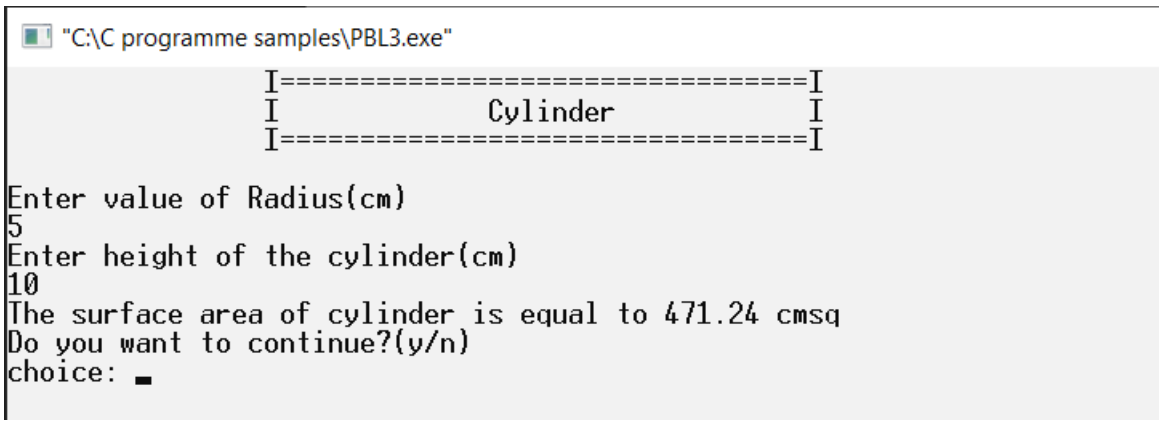
| Figure 2.1 | Area of Sphere Calculation |
|---|---|




| Figure 2.2 | Area of Cylinder Calculation |
|---|---|





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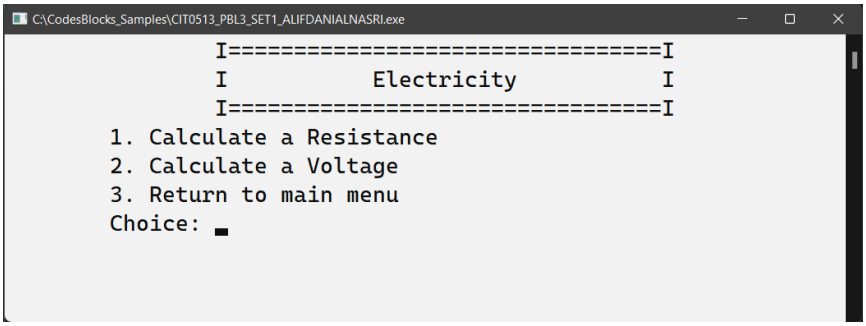
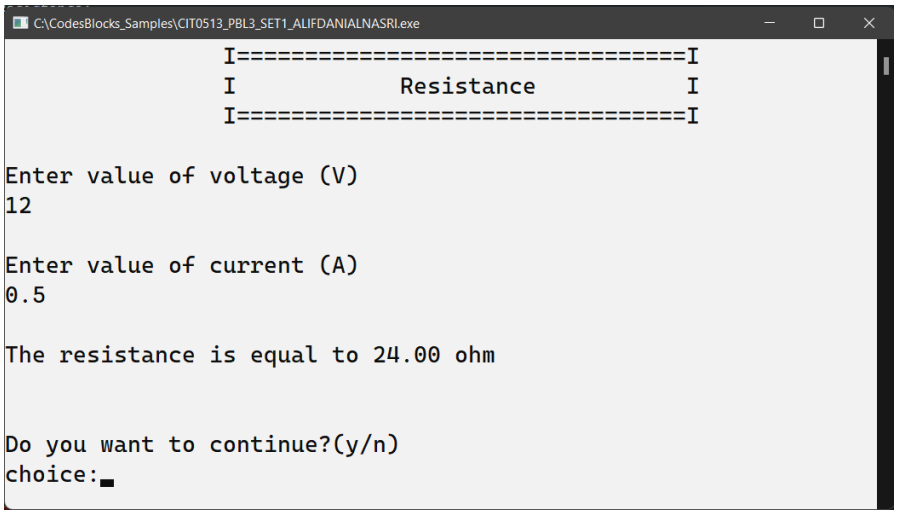
| Figure 3 | Electricity Sub Menu |
|---|---|




| Figure 3.1 | Calculation of Resistance |
|---|---|





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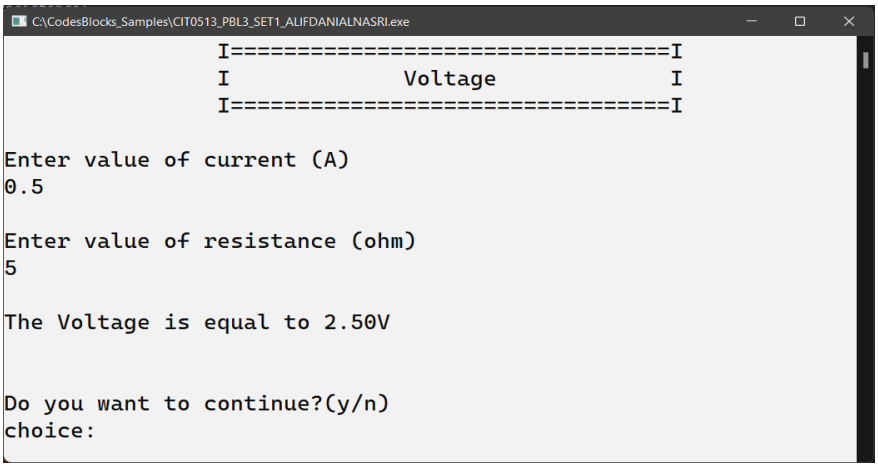
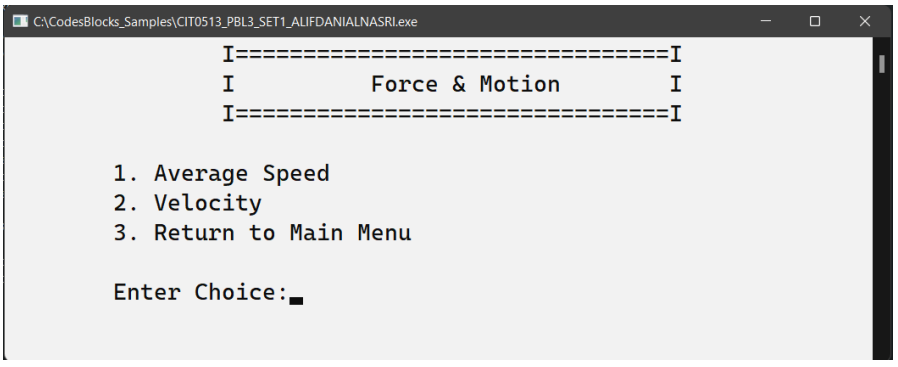
| Figure 3.2 | Calculation of Voltage |
|---|---|




| Figure 4 | Force and Motion Sub Menu |
|---|---|





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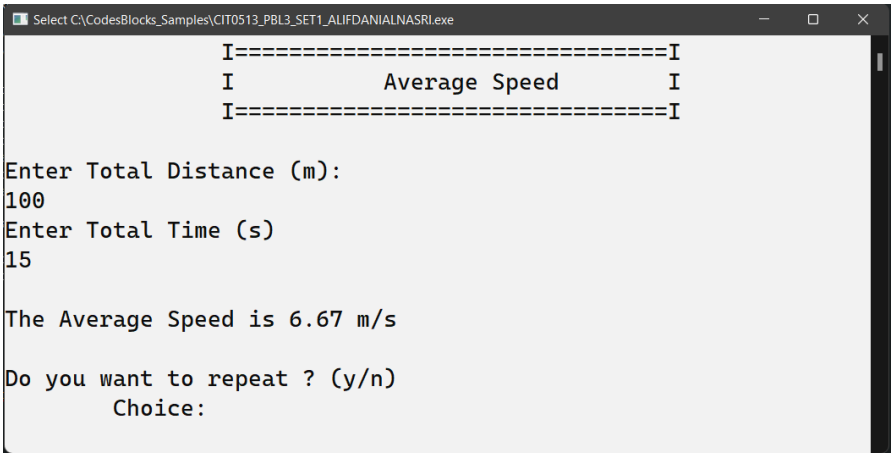
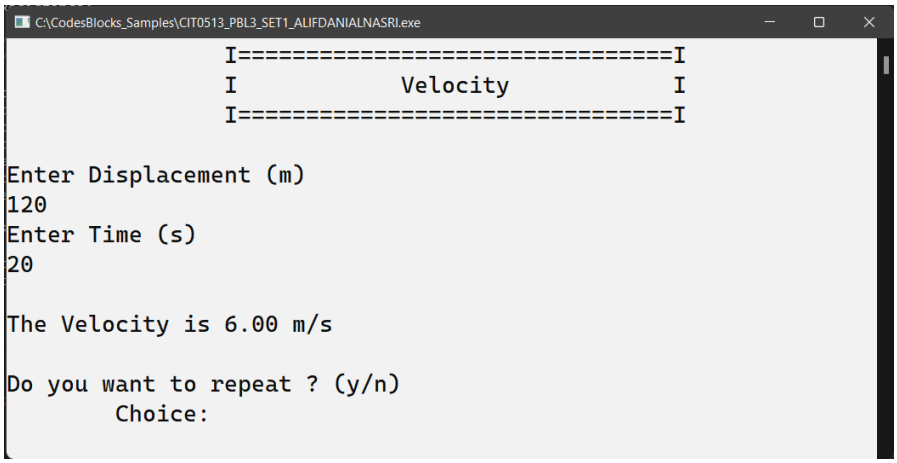
| Figure 4.1 | Average Speed Calculation |
|---|---|




| Figure 4.2 | Velocity Calculation |
|---|---|





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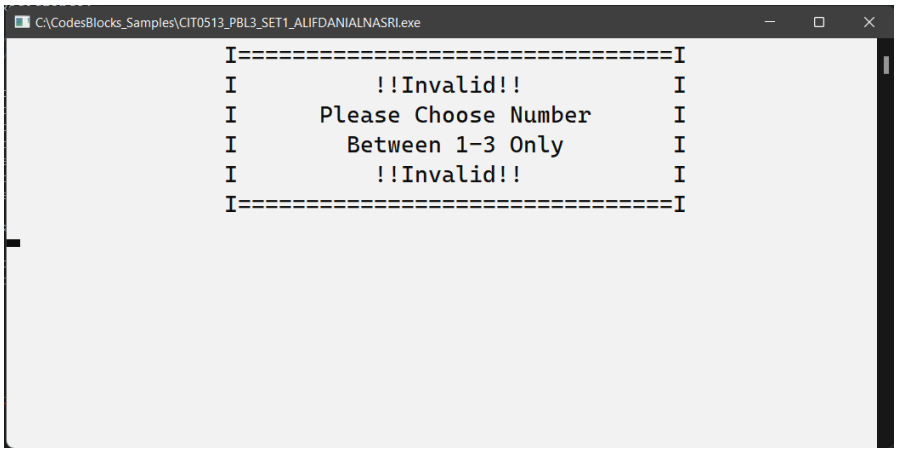
| Figure 5 | Appreciation Message |
|---|---|


| Figure 6 | Invalid Message |
|---|---|





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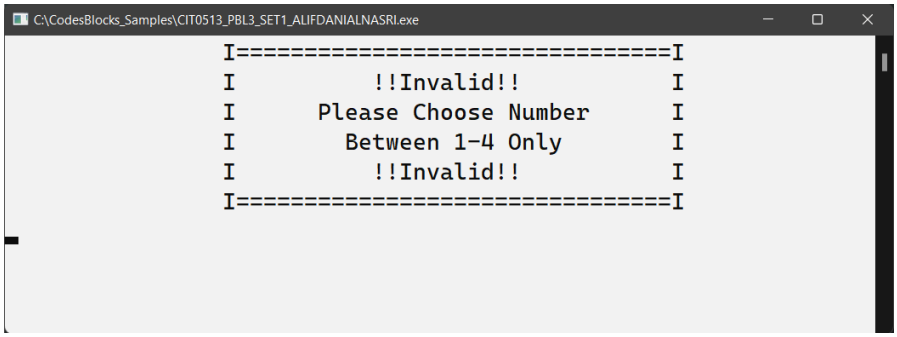
| Figure 7 | Invalid Message |
|---|---|





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# Programme Demo

# Surface Area

## 1. Sphere

- Radius=5cm
- Area=314.16cm²

## 2. Cylinder

- Radius=5cm
- Height=10cm
- Area=471.24cm²

# Electricity

## 1. Resistance

- Voltage=24V
- Current=1.5A
- Resistance=16.00 Ohm

## 2. Voltage

- Current=2.0A
- Resistance=15 Ohm
- Voltage=30.00V


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# Force and Motion

## 1. Average Speed

- Total Distance=500m
- Total Time=80s
- Average Speed=6.25 m/s

## 2. Velocity

- Displacement=200m
- Time=20s
- Velocity=10 m/s


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# Conclusion

In conclusion, what we get from doing this PBL 3 we got to know about everything from planning to doing the coding itself based on the requirement from our TTO. We managed to write the codes for this assignment and got it running successfully after a lot of trying and troubleshooting.

Computer programming is the process of creating and running a computer program to achieve a certain calculation result or to perform a definite operation. Programming involves tasks such as analysis, algorithm generation, algorithm accuracy, and resource consumption evaluation, as well as algorithm implementation in a programming language of your choice. Instead of machine code, which is immediately executed by a central processing unit, the source code of a program is written in one or more languages that the programmer can understand. The goal of programming is to come up with a set of instructions that will automate the execution of tasks (as complicated as an operating system) on a computer in order to solve a specific problem. As a result, specialized programming often necessitates knowledge in a variety of subjects, including application domain expertise, specialized algorithms, and formal logic.

We hope the knowledge that we got from this assignment can be applied in our daily life and helps us during our job soon.


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# References

## Program Code

**1.switch statement**
URL: https://www.programiz.com/c-programming/c-switch-case-statement

**2.do…while loop**
URL: https://www.programiz.com/c-programming/c-do-while-loops

**3.break and continue statement**
URL: https://www.programiz.com/c-programming/c-break-continue- statement


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