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NameMangling.txt

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```

1 #include <iostream>
2 using namespace std;
3
4 class A
5 {
6     public:
7         int i;
8         A() { i = 100;}
9
10        void f() {i = i * i;}
11        void f(int x) {i = i + x;}
12        int f(int x, int y) {i = i - x + y; return i;}
13    };
14
15    int main()
16    {
17        int m;
18        A *ap = new A();
19        ap->f();
20        ap->f(5);
21        m = ap->f(5, -10);
22
23        return 0;
24    }
25

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25
26 ; Listing generated by Microsoft (R) Optimizing Compiler Version 19.12.25834.0
27
28         TITLE      c:\K-State\cis450\Programs\CoursePrograms\Chap3\NameMangling\Nam
eMangling.cpp
29         .686P
30         .XMM
31         include listing.inc
32         .model flat
33
34 INCLUDELIB LIBCMT
35 INCLUDELIB OLDNAMES
36
37 PUBLIC  ??0A@@QAE@XZ                      ; A::A
38 PUBLIC  ?f@A@@QAEXXZ                      ; A::f
39 PUBLIC  ?f@A@@QAEHX@Z                     ; A::f
40 PUBLIC  ?f@A@@QAEHHH@Z                    ; A::f
41 PUBLIC  _main
42 EXTRN   ??2@YAPAXI@Z:PROC                  ; operator new
43 ; Function compile flags: /Odtp
44 ; File c:\k-state\cis450\programs\courseprograms\chap3\namemangling\namemangling
.cpp
45 _TEXT SEGMENT
46 _m$ = -16                                  ; size = 4
47 tv72 = -12                                ; size = 4
48 $T1 = -8                                   ; size = 4
49 _ap$ = -4                                  ; size = 4
50 _main PROC
51
52 ; 16      : {
53
54      00000 55                push    ebp
55      00001 8b ec            mov     ebp, esp
56      00003 83 ec 10        sub     esp, 16                ; 00000010H
57
58 ; 17      :      int m;
59 ; 18      :      A *ap = new A();
60
61      00006 6a 04                push    4
62      00008 e8 00 00 00 00    call   ??2@YAPAXI@Z                ; operator new
63      0000d 83 c4 04        add     esp, 4
64      00010 89 45 f8        mov     DWORD PTR $T1[ebp], eax
65      00013 83 7d f8 00    cmp     DWORD PTR $T1[ebp], 0
66      00017 74 0d        je      SHORT $LN3@main
67      00019 8b 4d f8        mov     ecx, DWORD PTR $T1[ebp]
68      0001c e8 00 00 00 00    call   ??0A@@QAE@XZ                      ; A::A
69      00021 89 45 f4        mov     DWORD PTR tv72[ebp], eax
70      00024 eb 07        jmp     SHORT $LN4@main
71 $LN3@main:
72      00026 c7 45 f4 00 00    mov     DWORD PTR tv72[ebp], 0
73
74 $LN4@main:
75      0002d 8b 45 f4        mov     eax, DWORD PTR tv72[ebp]
76      00030 89 45 fc        mov     DWORD PTR _ap$[ebp], eax
77
78 ; 19      :      ap->f();
79
80      00033 8b 4d fc        mov     ecx, DWORD PTR _ap$[ebp]
81      00036 e8 00 00 00 00    call   ?f@A@@QAEXXZ                      ; A::f
82
83 ; 20      :      ap->f(5);
84
85      0003b 6a 05                push    5
86      0003d 8b 4d fc        mov     ecx, DWORD PTR _ap$[ebp]
87      00040 e8 00 00 00 00    call   ?f@A@@QAEHX@Z                     ; A::f
88
89 ; 21      :      m = ap->f(5, -10);
90
91      00045 6a f6                push    -10                ; ffffffff6H
92      00047 6a 05                push    5
93      00049 8b 4d fc        mov     ecx, DWORD PTR _ap$[ebp]
94      0004c e8 00 00 00 00    call   ?f@A@@QAEHHH@Z                    ; A::f
95      00051 89 45 f0        mov     DWORD PTR _m$[ebp], eax

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96
97 ; 22 :
98 ; 23 :     return 0;
99
100 00054 33 c0          xor     eax, eax
101
102 ; 24 : }
103
104 00056 8b e5          mov     esp, ebp
105 00058 5d             pop     ebp
106 00059 c3            ret     0
107 _main  ENDP
108 _TEXT  ENDS
109 ; Function compile flags: /Odtp
110 ; File c:\k-state\cis450\programs\courseprograms\chap3\namemangling\namemangling
111 .cpp
112 ; COMDAT ?f@@@QAEHHH@Z
113 _TEXT  SEGMENT
114 _this$ = -4          ; size = 4
115 _x$ = 8              ; size = 4
116 _y$ = 12             ; size = 4
117 ?f@@@QAEHHH@Z PROC ; A::f, COMDAT
118 ; _this$ = ecx
119 ; 12 :     int f(int x, int y) {i = i - x + y; return i;}
120
121 00000 55             push    ebp
122 00001 8b ec          mov     ebp, esp
123 00003 51             push    ecx
124 00004 89 4d fc       mov     DWORD PTR _this$[ebp], ecx
125 00007 8b 45 fc       mov     eax, DWORD PTR _this$[ebp]
126 0000a 8b 08          mov     ecx, DWORD PTR [eax]
127 0000c 2b 4d 08       sub     ecx, DWORD PTR _x$[ebp]
128 0000f 03 4d 0c       add     ecx, DWORD PTR _y$[ebp]
129 00012 8b 55 fc       mov     edx, DWORD PTR _this$[ebp]
130 00015 89 0a          mov     DWORD PTR [edx], ecx
131 00017 8b 45 fc       mov     eax, DWORD PTR _this$[ebp]
132 0001a 8b 00          mov     eax, DWORD PTR [eax]
133 0001c 8b e5          mov     esp, ebp
134 0001e 5d             pop     ebp
135 0001f c2 08 00       ret     8
136 ?f@@@QAEHHH@Z ENDP ; A::f
137 _TEXT  ENDS
138 ; Function compile flags: /Odtp
139 ; File c:\k-state\cis450\programs\courseprograms\chap3\namemangling\namemangling
140 .cpp
141 ; COMDAT ?f@@@QAEXH@Z
142 _TEXT  SEGMENT
143 _this$ = -4          ; size = 4
144 _x$ = 8              ; size = 4
145 ?f@@@QAEXH@Z PROC  ; A::f, COMDAT
146 ; _this$ = ecx
147 ; 11 :     void f(int x) {i = i + x;}
148
149 00000 55             push    ebp
150 00001 8b ec          mov     ebp, esp
151 00003 51             push    ecx
152 00004 89 4d fc       mov     DWORD PTR _this$[ebp], ecx
153 00007 8b 45 fc       mov     eax, DWORD PTR _this$[ebp]
154 0000a 8b 08          mov     ecx, DWORD PTR [eax]
155 0000c 03 4d 08       add     ecx, DWORD PTR _x$[ebp]
156 0000f 8b 55 fc       mov     edx, DWORD PTR _this$[ebp]
157 00012 89 0a          mov     DWORD PTR [edx], ecx
158 00014 8b e5          mov     esp, ebp
159 00016 5d             pop     ebp
160 00017 c2 04 00       ret     4
161 ?f@@@QAEXH@Z ENDP ; A::f
162 _TEXT  ENDS
163 ; Function compile flags: /Odtp
164 ; File c:\k-state\cis450\programs\courseprograms\chap3\namemangling\namemangling
165 .cpp
166 ; COMDAT ?f@@@QAEXXZ

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```

166 _TEXT  SEGMENT
167 _this$ = -4          ; size = 4
168 ?f@@@QAEXXZ PROC    ; A::f, COMDAT
169 ; _this$ = ecx
170
171 ; 10 :     void f() {i = i * i;}
172
173 00000 55             push    ebp
174 00001 8b ec          mov     ebp, esp
175 00003 51             push    ecx
176 00004 89 4d fc       mov     DWORD PTR _this$[ebp], ecx
177 00007 8b 45 fc       mov     eax, DWORD PTR _this$[ebp]
178 0000a 8b 4d fc       mov     ecx, DWORD PTR _this$[ebp]
179 0000d 8b 10          mov     edx, DWORD PTR [eax]
180 0000f 0f af 11       imul   edx, DWORD PTR [ecx]
181 00012 8b 45 fc       mov     eax, DWORD PTR _this$[ebp]
182 00015 89 10          mov     DWORD PTR [eax], edx
183 00017 8b e5          mov     esp, ebp
184 00019 5d             pop     ebp
185 0001a c3            ret     0
186 ?f@@@QAEXXZ ENDP    ; A::f
187 _TEXT  ENDS
188 ; Function compile flags: /Odtp
189 ; File c:\k-state\cis450\programs\courseprograms\chap3\namemangling\namemangling
190 .cpp
191 ; COMDAT ??0A@@QAE@XZ
192 _TEXT  SEGMENT
193 _this$ = -4          ; size = 4
194 ??0A@@QAE@XZ PROC   ; A::A, COMDAT
195 ; _this$ = ecx
196 ; 8 :     A() { i = 100;}
197
198 00000 55             push    ebp
199 00001 8b ec          mov     ebp, esp
200 00003 51             push    ecx
201 00004 89 4d fc       mov     DWORD PTR _this$[ebp], ecx
202 00007 8b 45 fc       mov     eax, DWORD PTR _this$[ebp]
203 0000a c7 00 64 00 00 mov     DWORD PTR [eax], 100 ; 00000064H
204 00010 8b 45 fc       mov     eax, DWORD PTR _this$[ebp]
205 00013 8b e5          mov     esp, ebp
206 00015 5d             pop     ebp
207 00016 c3            ret     0
208 ??0A@@QAE@XZ ENDP   ; A::A
209 _TEXT  ENDS
210
211 END

```