Problem #1 :

A1 \ G1 \ F1 \ E1 \ D1/2 / F1/2 \ E1/2 / G1/2 \ F1
\ C1 / C1 \ Z1 \ A1 \ F1 \ E1 \ D1 \ C1 R1

Encoding in C Major:

Myst1 >> 5rp play lp play lp play lp play lp s2 play 2rp play lp play 2rp play x2 lp play 3lp play 7rp play lp playxlp lp play 2lp play lp play lp play lp play rest

Clay> MYST1
A1 \ G1 \ F1 \ E1 \ D1/2 / F1/2 \ E1/2 / G1/2 \ F1 \ C1 / C1 \ Z1 \ A1 \ F1 \ E1 \ D1 \ C1 R1

Krumhansl's Algorithm:

Performing the Krumhansl Key Finding Algorithm ...

pitchclass-duration sequence ...
A1.0 G1.0 F1.0 E1.0 D0.5 F0.5 E0.5 G0.5 F1.0 C1.0 C1.0 Z1.0 A1.0 F1.0 E1.0 D1.0 C1.0

pprofile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0

computing a correlation .....
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Cmajor ...
(C,6.35)(C#,2.23)(D,3.48)(Eb,2.33)(E,4.38)(F,4.09)(F#,2.52)(G,5.19)(Ab,2.39)(A,3.66)(Bb,2.29)(B,2.88)
xbar = 1.25
ybar = 3.4825000000000004
cor(top) = 14.692499999999999
cor(bot(x)) = 18.25
cor(bot(y)) = 19.146225
cor(bot) = 18.692742074131342
cor = 0.786000253025091

computing a correlation .....
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Cminor ...
(C,6.33)(C#,2.68)(D,3.52)(Eb,5.38)(E,2.6)(F,3.53)(G#,2.54)(G,4.75)(Ab,3.98)(A,2.69)(Bb,3.34)(B,3.17)
xbar = 1.25
ybar = 3.709166666666667

cor(top) = 3.3325000000000005
cor(bot(x)) = 18.25
cor(bot(y)) = 16.007091666666668
cor(bot) = 17.09179402276621
cor = 0.19497660664299618

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile CSHARPmajor ...
(C,2.88)(C#,6.35)(D,2.23)(Eb,3.48)(E,2.33)(F,4.38)(F#,4.09)(G,2.52)(Ab,5.19)(A,2.39)(Bb,3.66)(B,2.29)
xbar = 1.25
ybar = 3.4825
cor(top) = -6.8774999999999995
cor(bot(x)) = 18.25
cor(bot(y)) = 19.146224999999998
cor(bot) = 18.69274207413134
cor = -0.3679235487616174

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile CSHARPminor ...
(C,3.17)(C#,6.33)(D,2.68)(Eb,3.52)(E,5.38)(F,2.6)(F#,3.53)(G,2.54)(Ab,4.75)(A,3.98)(Bb,2.69)(B,3.34)
xbar = 1.25
ybar = 3.709166666666666
cor(top) = -5.097499999999999
cor(bot(x)) = 18.25
cor(bot(y)) = 16.007091666666668
cor(bot) = 17.09179402276621
cor = -0.29824253634288755

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Dmajor ...
(C,2.29)(C#,2.88)(D,6.35)(Eb,2.23)(E,3.48)(F,2.33)(F#,4.38)(G,4.09)(Ab,2.52)(A,5.19)(Bb,2.39)(B,3.66)
xbar = 1.25
ybar = 3.4825000000000004
cor(top) = -0.0824999999999988

cor(bot(x)) = 18.25
cor(bot(y)) = 19.146225
cor(bot) = 18.692742074131342
cor = -0.004413477684163285

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Dminor ...
(C,3.34)(C#,3.17)(D,6.33)(Eb,2.68)(E,3.52)(F,5.38)(F#,2.6)(G,3.53)(Ab,2.54)(A,4.75)(Bb,3.98)(B
,2.69)
xbar = 1.25
ybar = 3.7091666666666665
cor(top) = 10.282499999999999
cor(bot(x)) = 18.25
cor(bot(y)) = 16.007091666666668
cor(bot) = 17.09179402276621
cor = 0.6016044884640983

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile EFLATmajor ...
(D,3.66)(C#,2.29)(D,2.88)(Eb,6.35)(E,2.23)(F,3.48)(F#,2.33)(G,4.38)(Ab,4.09)(A,2.52)(Bb,5.19)(
B,2.39)
xbar = 1.25
ybar = 3.4825
cor(top) = -2.3824999999999994
cor(bot(x)) = 18.25
cor(bot(y)) = 19.146225
cor(bot) = 18.692742074131342
cor = -0.1274558858487173

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile EFLATminor ...
(C,2.69)(C#,3.34)(D,3.17)(Eb,6.33)(E,2.68)(F,3.52)(F#,5.38)(FG,2.6)(Ab,3.53)(A,2.54)(Bb,4.75)(
B,3.98)
xbar = 1.25
ybar = 3.7091666666666665
cor(top) = -10.062499999999996
cor(bot(x)) = 18.25

cor(bot(y)) = 16.007091666666664
cor(bot) = 17.091794022766205
cor = -0.5887328145071714

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Emajor ...
(C,2.39)(C#,3.66)(D,2.29)(Eb,2.88)(E,6.35)(F,2.23)(F#,3.48)(G,2.33)(Ab,4.38)(A,4.09)(Bb,2.52)(B,5.19)
xbar = 1.25
ybar = 3.4825
cor(top) = -3.7575000000000003
cor(bot(x)) = 18.25
cor(bot(y)) = 19.146225
cor(bot) = 18.692742074131342
cor = -0.20101384725143984

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Eminor ...
(C,3.98)(C#,2.69)(D,3.34)(Eb,3.17)(E,6.33)(F,2.68)(F#,3.52)(G,5.38)(Ab,2.6)(A,3.53)(Bb,2.54)(B,4.75)
xbar = 1.25
ybar = 3.7091666666666665
cor(top) = 4.187499999999998
cor(bot(x)) = 18.25
cor(bot(y)) = 16.007091666666668
cor(bot) = 17.09179402276621
cor = 0.2450006122483259

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Fmajor ...
(C,5.19)(C#,2.39)(D,3.66)(Eb,2.29)(E,2.88)(F,6.35)(F#,2.23)(G,3.48)(Ab,2.33)(A,4.38)(Bb,4.09)(B,2.52)
xbar = 1.25
ybar = 3.4825
cor(top) = 16.317500000000003
cor(bot(x)) = 18.25
cor(bot(y)) = 19.146225

cor(bot) = 18.692742074131342
cor = 0.8729323892283086

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Fminor ...
(C,4.75)(C#,3.98)(D,2.69)(Eb,3.34)(E,3.17)(F,6.33)(F#,2.68)(G,3.52)(Ab,5.38)(A,2.6)(Bb,3.53)(B
,2.54)
xbar = 1.25
ybar = 3.7091666666666665
cor(top) = 6.7375
cor(bot(x)) = 18.25
cor(bot(y)) = 16.007091666666664
cor(bot) = 17.091794022766205
cor = 0.39419501493088877

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile FSHARPmajor ...
(C,2.52)(C#,5.19)(D,2.39)(Eb,3.66)(E,2.29)(F,2.88)(F#,6.35)(G,2.23)(Ab,3.48)(A,2.33)(Bb,4.38)(
B,4.09)
xbar = 1.25
ybar = 3.4825000000000004
cor(top) = -12.9025
cor(bot(x)) = 18.25
cor(bot(y)) = 19.146225
cor(bot) = 18.692742074131342
cor = -0.6902411614535469

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile FSHARPminor ...
(C,2.54)(C#,4.75)(D,3.98)(Eb,2.69)(E,3.34)(F,3.17)(F#,6.33)(G,2.68)(Ab,3.52)(A,5.38)(Bb,2.6)(B
,3.53)
xbar = 1.25
ybar = 3.709166666666667
cor(top) = -5.222500000000001
cor(bot(x)) = 18.25
cor(bot(y)) = 16.007091666666668
cor(bot) = 17.09179402276621

cor = -0.30555598745477797

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Gmajor ...
(C,4.09)(C#,2.52)(D,5.19)(Eb,2.39)(E,3.66)(F,2.29)(F#,2.88)(G,6.35)(Ab,2.23)(A,3.48)(Bb,2.33)(B,4.38)
xbar = 1.25
ybar = 3.4825
cor(top) = 3.7975000000000003
cor(bot(x)) = 18.25
cor(bot(y)) = 19.146224999999998
cor(bot) = 18.69274207413134
cor = 0.20315371521951908

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Gminor ...
(C,3.53)(C#,2.54)(D,4.75)(Eb,3.98)(E,2.69)(F,3.34)(F#,3.17)(G,6.33)(Ab,2.68)(A,3.52)(Bb,5.38)(B,2.6)
xbar = 1.25
ybar = 3.709166666666667
cor(top) = 2.4074999999999993
cor(bot(x)) = 18.25
cor(bot(y)) = 16.007091666666668
cor(bot) = 17.09179402276621
cor = 0.1408570684150077

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile AFLATmajor ...
(C,4.38)(C#,4.09)(D,2.52)(Eb,5.19)(E,2.39)(F,3.66)(F#,2.29)(G,2.88)(Ab,6.35)(A,2.23)(Bb,3.48)(B,2.33)
xbar = 1.25
ybar = 3.4824999999999995
cor(top) = -4.272500000000001
cor(bot(x)) = 18.25
cor(bot(y)) = 19.146224999999998
cor(bot) = 18.69274207413134
cor = -0.22856464734045961

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile AFLATminor ...
(C,2.6)(C#,3.53)(D,2.54)(Eb,4.75)(E,3.98)(F,2.69)(F#,3.34)(G,3.17)(Ab,6.33)(A,2.68)(Bb,3.52)(B
,5.38)
xbar = 1.25
ybar = 3.709166666666667
cor(top) = -11.0275
cor(bot(x)) = 18.25
cor(bot(y)) = 16.007091666666668
cor(bot) = 17.09179402276621
cor = -0.6451926570909647

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Amajor ...
(C,2.33)(C#,4.38)(D,4.09)(Eb,2.52)(E,5.19)(F,2.39)(F#,3.66)(G,2.29)(Ab,2.88)(A,6.35)(Bb,2.23)(
B,3.48)
xbar = 1.25
ybar = 3.4824999999999995
cor(top) = 0.5925000000000011
cor(bot(x)) = 18.25
cor(bot(y)) = 19.146224999999998
cor(bot) = 18.69274207413134
cor = 0.031696794277173215

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Aminor ...
(C,5.38)(C#,2.6)(D,3.53)(Eb,2.54)(E,4.75)(F,3.98)(F#,2.69)(G,3.34)(Ab,3.17)(A,6.33)(Bb,2.68)(B
,3.52)
xbar = 1.25
ybar = 3.709166666666667
cor(top) = 11.952499999999999
cor(bot(x)) = 18.25
cor(bot(y)) = 16.007091666666664
cor(bot) = 17.091794022766205
cor = 0.6993121953189533

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile BFLATmajor ...
(C,3.48)(C#,2.33)(D,4.38)(Eb,4.09)(E,2.52)(F,5.19)(F#,2.39)(G,3.66)(Ab,2.29)(A,2.88)(Bb,6.35)(B,2.23)
xbar = 1.25
ybar = 3.4825
cor(top) = 6.8375
cor(bot(x)) = 18.25
cor(bot(y)) = 19.146224999999998
cor(bot) = 18.69274207413134
cor = 0.3657836807935383

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile BFLATminor ...
(C,3.52)(C#,5.38)(D,2.6)(Eb,3.53)(E,2.54)(F,4.75)(F#,3.98)(G,2.69)(Ab,3.34)(A,3.17)(Bb,6.33)(B,2.68)
xbar = 1.25
ybar = 3.7091666666666665
cor(top) = -1.4974999999999996
cor(bot(x)) = 18.25
cor(bot(y)) = 16.007091666666668
cor(bot) = 17.09179402276621
cor = -0.08761514432044612

computing a correlation ......
pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Bmajor ...
(C,2.23)(C#,3.48)(D,2.33)(Eb,4.38)(E,4.09)(F,2.52)(F#,5.19)(G,2.39)(Ab,3.66)(A,2.29)(Bb,2.88)(B,6.35)
xbar = 1.25
ybar = 3.4825000000000004
cor(top) = -11.962500000000002
cor(bot(x)) = 18.25
cor(bot(y)) = 19.146224999999998
cor(bot) = 18.69274207413134
cor = -0.639954264203686

computing a correlation ......

pitch profile ...
C3.0 C#0.0 D1.5 Eb0.0 E2.5 F3.5 F#0.0 G1.5 Ab0.0 A2.0 Bb1.0 B0.0
key profile Bminor ...
(C,2.68)(C#,3.52)(D,5.38)(Eb,2.6)(E,3.53)(F,2.54)(F#,4.75)(G,3.98)(Ab,2.69)(A,3.34)(Bb,3.17)(B,6.33)
xbar = 1.25
ybar = 3.709166666666667
cor(top) = -5.9925000000000015
cor(bot(x)) = 18.25
cor(bot(y)) = 16.007091666666668
cor(bot) = 17.09179402276621
cor = -0.35060684630402245

Key/Correlation Table ...

C major	0.**786**(2)	C minor	0.194977(9)
C# major	-0.367924(20)	C# minor	-0.298243(17)
D major	-0.004413(12)	D minor	**0.601604**(4)
Eb major	-0.127456(14)	Eb minor	-0.588733(21)
E major	-0.201014(15)	E minor	0.245001(7)
F major	0.**872932(**1)***	F minor	**0.394195**(5)
F# major	-0.690241(24)	F# minor	-0.305556(18)
G major	0.203154(8)	G minor	0.140857(10)
Ab major	-0.228565(16)	Ab minor	-0.645193(23)
A major	0.031697(11)	A minor	**0.699312**(3)
Bb major	0.365784(6)	Bb minor	-0.087615(13)
B major	-0.639954(22)	B minor	-0.350607(19)

F major

Analysis:

The best key that fits is F Major. The top five choices are: F Major > C Major > A minor > D minor > F minor