

Acceptance Test Plan: Registration Pricing Verification

1. Introduction and Objective

Objective: The primary objective of this Acceptance Test Plan (ATP) is to verify that the Franklin Marathon System accurately calculates the total registration fee charged to a runner, considering the registration date, selected race distance(s), senior status, and bundling status, as defined in requirements R1.4, R3.1, R3.2, and R3.3.

V-Model Context: This ATP is designed to validate the system against the user requirements (the leftmost leg of the V-Model) and serves as the final step before accepting the system for deployment.

2. Scope

In-Scope: Verification of the total calculated charge, including:

1. Correct determination of the base price tier (Super Early, Early, Baseline, Late) based on registration date.
2. Correct retrieval of base price for all four race types (5K, 10K, Half, Full).
3. Accurate application of the **\$5 per race Senior Discount** (Age 65+ on registration date).
4. Accurate application of the **20% Bundling Discount** (Saturday + Sunday event).
5. Accurate final price calculation combining all applicable discounts and base fees.

Out-of-Scope: Registration form data collection (R4.1), Roster management (R5.x), Race day/closure calculation (R1.3), and age division calculation (R5.3).

3. Test Strategy: ECP and BVA

To ensure comprehensive testing, we will apply Equivalence Class Partitioning (ECP) and Boundary Value Analysis (BVA) to the key input variables that influence pricing.

3.1 Equivalence Classes and Boundaries

Input Variable	Equivalence Classes (EC)	Boundary Values (BVA)
Registration Date	1. Super Early: Oct 1 - Oct 31	B1.1: Oct 31 (Super Early max)
(Determines Tier)	2. Early: Nov 1 - Feb 28/29	B1.2: Nov 1 (Early min)
	3. Baseline: Mar 1 - Apr 1	B1.3: Feb 28 (Early max, non-leap)
	4. Late: Apr 2 - Close Date	B1.4: Mar 1 (Baseline min)
		B1.5: Apr 1 (Baseline max)
		B1.6: Apr 2 (Late min)
Races Selected	1. Saturday Only: (5K or 10K)	N/A
(Determines Base Price & Bundle)	2. Sunday Only: (Half or Full)	N/A
	3. Bundle: (Sat + Sun)	N/A
Runner Age	1. Not Senior: Age < 65	B2.1: Age 64 (Not Senior max)
(Determines Discount)	2. Senior: Age ≥ 65	B2.2: Age 65 (Senior min)

Note on Dates (Assuming 2026):

- **Race Day:** Saturday, May 2, 2026.
- **Registration Closes:** Thursday, April 30, 2026, at 23:59:59.

4. Acceptance Test Cases

The following test cases are constructed by combining the Boundary Values and key Equivalence Classes (Race Type and Senior Status) to ensure maximum test coverage.

Test Case ID	Registration Date	Race(s) Selected	Age on Reg Date	Senior Discount (R3.2)	Bundle Discount (R3.3)	Expected Base Price	Expected Final Charge
ATP-01 (BVA/SE)	Oct 31 (B1.1)	5K	45	None	None	\$30.00	\$30.00
ATP-02 (BVA/E)	Nov 1 (B1.2)	10K	45	None	None	\$55.00	\$55.00
ATP-03 (BVA/E-B)	Mar 1 (B1.4)	Half Marathon	45	None	None	\$85.00	\$85.00
ATP-04 (BVA/B-L)	Apr 2 (B1.6)	Full Marathon	45	None	None	\$109.00	\$109.00
ATP-05 (ECP/Bundl e)	Oct 15 (SE)	5K + Full	45	None	20%	(\$30+\$75) = \$105.00	\$84.00 (\$105.00 x 0.8)
ATP-06 (BVA/Senior)	Nov 15 (E)	10K	65 (B2.2)	\$5.00 (1 race)	None	\$55.00	\$50.00 (\$55.00 - \$5.00)
ATP-07 (BVA/Not Senior)	Nov 15 (E)	Half Marathon	64 (B2.1)	None	None	\$70.00	\$70.00
ATP-08 (BVA/Bundl e+Senior)	Mar 15 (B)	10K + Half	70 (B2.2)	\$10.00 (2 races)	20%	(\$70+\$85) = \$155.00	\$114 (155 * 0.8 - 10)
ATP-09 (Boundary/ Late)	Apr 1 (B1.5)	5K	45	None	None	\$50.00	\$50.00
ATP-10 (Leap Year)	Feb 29, 2028 (E)	10K	45	None	None	\$55.00	\$55.00
ATP-11 (Max Late)	Apr 30 (Close Date)	5K + Half	75	\$10.00 (2 races)	20%	(\$64+\$99) = \$163.00	\$120 (163 * 0.8 - 10)
ATP-12 (Invalid Date)	May 1, 2026	Full Marathon	45	N/A	N/A	N/A	Error/Registration Blocked

5. Test Procedures

1. **Preparation:** Set the system's internal server time to the specified registration date for the test case.
2. **Input:** Enter required runner data (Name, DOB to ensure the correct age, etc.) and select the specified race(s).
3. **Execute:** Submit the registration.
4. **Verification:** Compare the final charge presented by the system with the **Expected Final Charge** listed in the table.
5. **Logging:** Record the System Charge and the Test Result (Pass/Fail).